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# SPRING Nature STUDY



Excerpted from "Type Lessons for Primary Teachers"

## **Spring Nature Study**

is excerpted from the book  
"Type Lessons for Primary Teachers" by Anna E. McGovern  
originally published in 1905

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## SPRING NATURE STUDY

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"What prodigies can Power Divine perform  
More grand than it produces year by year,  
And all in sight of inattentive man?"

In February and March we catch glimpses of the beauty  
and the glory ahead, when,

Earth is crammed with heaven,  
And every bush alive with God,  
But only he who sees,  
Puts off his shoes.

—MRS. BROWNING.

Nature's awakening is a revelation to young and old, and furnishes numberless beautiful lessons of purpose, protection, and order, lessons of beauty and unity by which the wisdom and power of the Creator are daily manifested. If, however, the unfolding buds, the fresh awakened flowers, and the joyous bird songs cause no thrill of delight in the teacher's soul; we may safely assert that she is not ready to guide, to influence the child, that poetic investigator whose every heart throb is a response, a greeting to the divine power that quickens the seed, the bud—all things to life and beauty.

The mystery and loveliness of this season, so full of life and promise, has been interpreted by those whose responsive insight into nature cannot be questioned and the teacher must go to them for inspiration and uplift.—Wordsworth, Tennyson, Burroughs and a host of others.

**Bryant writes:**

"My heart is awed within me when I think  
Of the great miracle that still goes on  
In silence round me—the perpetual work  
Of the creation, finished, yet renewed forever."

### THE VOICE OF SPRING

I come, I come! ye have called me long;  
I come o'er the mountains with light and song;  
Ye may trace my step o'er the waking earth  
By the winds which tell of the violets' birth,  
By the primrose stars in the shadowy grass,  
By the green leaves opening as I pass.  
I have breathed on the South, and the chestnut flowers  
By thousands have burst from the forest flowers,  
I have looked o'er the hills of the stormy North,  
And the larch has hung all his tassels forth,  
And the pine has a fringe of softer green,  
And the moss looks bright where my steps have been.  
I have sent through the woodpaths a glowing sigh  
And called out each voice of the deep blue sky.

—MRS. HEMANS.

### FIND FIVE PROOFS OF THE ARRIVAL OF SPRING.

#### I LISTEN TO THE VOICE OF GOD

While blades are breaking through the sod;  
Amid the greening dells and hills  
I listen to the voice of God.  
The earth has passed beneath the rod,  
And vales are musical with rills,  
While blades are breaking through the sod.

A sound of wondrous joy abroad  
Forth issues from a thousand hills;  
I listen to the voice of God.  
I walk with joy where late I trod,  
'Mid snows and rains and wintry chills;  
While blades are breaking through the sod.

Oft, when in weariness I plod  
Life's highway, bowed 'neath aches and ills,  
I listen to the voice of God.  
Reviving glory from the clod  
My soul with dreams of rapture fills,  
While blades are breaking through the sod  
I listen to the voice of God.

—D. J. DONAHOE.

Mrs. Hemans asks:

"Have ye not *seen* Him, when through parted snows  
Wake the first kindlings of the vernal green?  
Have ye not *heard* Him, when the tuneful rill  
Cuts off its icy chains and leaps away?  
In thunders echoing loud from hill to hill?  
In songs of birds, at break of summer's day?  
Have ye not *felt* Him while your kindling prayer  
Swelled out in tones of praise, announcing God was there?"

In the spring nature work, train the child to recognize the evidences of law, order, and sequence while studying the life story of the plant from seed to seed.

Cultivate in him an abiding friendship for the flowers, the trees, the birds—for all living things. Nature loved in youth will prove a blessing and an inspiration in mature life.

## GERMINATION

Germination, one of the most fascinating phases of plant life, appeals to the children with wonderful force and they should be led to watch with interest the mysterious changes taking place during the early spring time.

"Each thing upward tends, by necessity decreed,  
And a world's support depends on the shooting of a seed!"

Talk with pupils about the signs of spring; snow disappearing, birds returning, and the buds unfolding.

The Laughing Chorus will serve as an introduction to the planting of seeds.

## A LAUGHING CHORUS

Oh, such a commotion under the ground  
When March called, "Ho, there! ho!"  
Such spreading of rootlets far and wide,  
Such whispering to and fro;  
And "Are you ready?" the Snowdrop asked,  
" 'Tis time to start, you know."  
"Almost, my dear," the Scilla replied;  
"I'll follow as soon as you go."  
Then "Ha! ha! ha!" a chorus came  
Of laughter soft and low,  
From the millions of flowers under the ground—  
Yes—millions—beginning to grow.  
"I'll promise my blossoms," the Crocus said,  
"When I hear the bluebirds sing."  
And straight thereafter, Narcissus cried,  
"My silver and gold I'll bring."  
"And ere they are dulled," another spoke,  
"The Hyacinth bells shall ring."  
And the Violet only murmured, "I'm here,"  
And sweet grew the air of spring.  
Then "Ha! ha! ha!" a chorus came  
Of laughter soft and low,  
From the millions of flowers under the ground—  
Yes, millions—beginning to grow.  
Oh, the pretty, brave things! through the coldest days,  
Imprisoned in walls of brown,  
They never lost heart though the blast shrieked loud,  
And the sleet and the hail came down,  
But patiently each wrought her beautiful dress,  
Or fashioned her beautiful crown;  
And now they are coming to brighten the world,  
Still shadowed by Winter's frown;  
And well may they cheerily laugh, "Ha! ha!"  
In a chorus soft and low,  
The millions of flowers hid under the ground—  
Yes—millions—beginning to grow.

—FROM EMERSON'S *Evolution of Expression*.

Let children name rootlets they see in imagination spreading far and wide. Name flowers they will be glad to see this spring. What do the flowers need in order to grow? Call to mind last autumn's study of seeds. Tell them about the life and beauty contained in a seed. Read and discuss with pupils, "Waiting to Grow" and "The Little Brown Seed in the Furrow."

### WAITING TO GROW

Little, white snowdrop, just waking up,  
Violet, daisy, and sweet buttercup!  
Think of the flowers that are under the snow,  
Waiting to grow!

Nothing so small, or hidden so well,  
That God will not find it, and very soon tell  
His sun where to shine, and His rain where to go,  
To help them to grow!

—AUTHOR UNKNOWN.

### THE LITTLE BROWN SEED IN THE FURROW

A little brown seed in the furrow  
Lay still in its gloomy bed,  
While violets blue and lilies white  
Were whispering overhead,  
They whispered of glories strange and rare,  
Of glittering dew and floating air,  
Of beauty and rapture everywhere,  
And the seed heard all they said.

O, little brown seed in the furrow,  
At last you have pierced the mold;  
And quivering with a life intense,  
Your beautiful leaves unfold  
Like wings outspread for upward flight;  
And slowly, slowly, in dew and light  
A sweet bud opens—till, in God's sight,  
You wear a crown of gold.

—IDA W. BENHAM, FROM *Arbor Day Manual*.

**Awakening Life in Seeds.**—Soak some of the seeds collected last fall, such as the bean, the pea, the morning-glory, the pumpkin, and the corn, and let each child discover for himself the awakening life, and watch the development of roots, stems, buds, and leaves.

Plant many seeds in window-boxes filled with clean sand, for observation during the term. Cover boxes with panes of glass till the seedlings are well started. Make the conditions different for the same kind of seeds. Keep some warm; others cool. Plant some in the dark. As soon as the first sprouts appear above the ground plant another set, and continue this plan until a series is obtained, ranging from a foot high to those just beginning to grow.

The growth of the roots may be observed by placing seeds on a piece of coarse mosquito netting, over a glass dish containing water. Seeds just touch the water.

They may also be grown on moist blotting paper or sponge for observation.

Place a moist sponge in a jelly glass containing water and cover with a large inverted glass. If the blotting paper is used it should be covered, and the seeds should not be exposed to the light while they are germinating. Pupils will discover that growing seeds need air, moisture, and warmth.

The lessons on germination are suitable for all children after they enter school. The treatment, of course, should vary according to the age and the ability of the pupils.

In the first grade, study bean (Lima) from seed to seed. Plant the Lima bean edgewise with the eye down.

In the second grade, compare the life story of the bean and the pea.

In the third and fourth years, acorn, maple, pumpkin, and others, according to the teacher's judgment.

The children should plant and care for seeds at home and

report changes in appearance from week to week. Tell the children that each seed has a story to tell and we must learn to read it correctly. Examine seeds several times daily after placing them in water and decide why they are larger and softer than the dry seeds.

Watch the changes that are taking place in the seeds planted in the sponge.

After a week or so pupils will notice the arched stems pushing up the soil in the box. Older pupils will see and feel the truth and beauty of the following lines:

Every clod feels a stir of might  
An instinct within it that reaches and towers  
And groping blindly above it for light,  
Climbs to a soul in the grass and flowers.

—LOWELL

Why is the stem of the bean bent into a loop as it comes up to the light?

Is this the way it protects the tender growing apex? Compare with the pea and corn seedlings.

Where did the bean get its first food before it had a leaf or a root outside the seed coat? Children may be led to discover that the bean has the plumule ready formed in the seed, while the morning-glory seed has not. Why? The bean stored up food enough to develop the plumule before it formed a root, while the morning-glory seed has only food enough to enable the young plant to form its roots.

Compare the bean with the pea, pumpkin, and sunflower in this respect. Observe the bean seedling backing out of the ground and straightening up—picture the plumule and the spreading leaves between the cotyledons. Compare with the pea, the pumpkin, and the corn.

Children should be led to see differences, not told.

Find out what parts of a plant children recognize. By this time they have observed what each part—coat, cotyledon, caulicle, and plumule, does for the plant.



Pupils watch the germination of the acorn and compare with the pine and maple seeds.

Let each pupil care for one or two plants and record by drawing the first appearance of the root, stem (caulicle), buds, leaves, etc.

How is the plumule of the bean different from that of the corn? Which of these seedlings has the greatest number of root hairs? Let each child mark off a square yard of ground at home and count the different kinds of plants it contains.

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## SWEET PEA

How does the pea seedling come above the ground? Do you find the pea at the end of the stem? What is the use of the coiling threads or tendrils on the plant? Children furnish sticks or some support for the peas. Leave two or three unsupported and see how they behave. They seem so eager to reach up to the sunlight. Cover one of the unsupported plants so that the sun cannot reach it.

How are the leaves arranged on the stem? What is the root doing for the plant? Measure a plant daily and see how rapidly it grows.

What is the difference in the appearance of the plant that was deprived of sunlight and those growing in the sun? The vine growing in the dark has a spindling weak stem and the leaves are small and yellowish. The other plants are strong and green; their leaves took in a gas (carbon dioxide) from the air, and the sunlight helped them to manufacture nourishing food.

Count the leaves on a plant. They have so much work to do. What is the work of the stem? The root? Root, stem, and leaves all worked together to make the flower.

Watch the bud unfolding. What insects visit the flower?

The fragrance, the color, and the form of the blossom all combine to make it very attractive.

The flower is nodding, five-parted, and the shape of the corolla resembles a butterfly. The large petal is called the banner, the two petals on the sides are the wings, and the

"Here are sweet peas on tip-toe for a flight,  
With wings of gentle flush o'er delicate white,  
And taper fingers catching at all things,  
To bind them all about with tiny rings."

—KEATS.

two small petals joined in the middle are the keel petals.

Carefully open a couple of flowers and paste on cards to show children how beautiful they are. Do not allow pupils to pull flowers to pieces.

Examine calyx; count the thread-like bodies (ten stamens) surrounding a long boat-shaped part (pistil); nine stamens are united toward the base (one brotherhood), while the tenth is separate and free.

Call attention to pollen case at the end of each stamen, and the flat pistil covered with tiny hairs. Pollen from the stamens falls on the pistil and when it reaches the seed-box the little ovules begin to grow. Watch the pod increasing in size.

Children, sketch the pea vine frequently during the term.

TEACHER, TELL THE STORY OF "THE PEA BLOSSOM."

There were once five peas in one shell; they were green, and the shell was green, and so they believed that the whole world must be green also, which was a very natural conclusion.

The shell grew and the peas grew; they accommodated themselves to their position, and sat all in a row. The sun shone without and warmed the shell, and the rain made it clear and transparent; it was mild and agreeable in broad daylight and dark at night, as it generally is; and the peas, as they sat there, grew larger and larger, and more thoughtful as they mused, for they felt there must be something for them to do.

"Are we to sit here forever?" asked one; "shall we not become hard by sitting so long? There must be something outside; I feel sure of it."

And so weeks passed by; the peas became yellow.

"All the world is turning yellow, I suppose," said they,—and perhaps they were right. Suddenly they felt a pull at the shell; it was torn off, and held in hungry hands, then slipped into the pocket of a jacket, in company with other full pods. "Now we shall soon be let out,"—said one,—just what they all wanted.

"I should like to know which of us will travel farthest," said the smallest one of the five; "we shall soon see now."

"Crack!" went the shell as it burst and the five peas rolled out into the bright sunshine. There they lay in a child's hand. A little boy was holding them tightly; he said they were fine peas for his pea-shooter. And immediately he put one in and shot it out. "Now I am flying out into the wide world," said the pea; "catch me if you can;" and he was gone in a moment.

"I," said the second, "intend to fly straight to the sun; that is a shell that lets itself be seen, and it will suit me exactly;" and away he went.

"Wherever we find ourselves we will go to sleep," said the two next; "we shall still be rolling onwards;" and they did certainly fall on the floor, and roll about before they got into the pea-shooter; but they were put in for all that. "We will go farther than the others," said they.

The last, as he was shot out of the pea-shooter, flew up against an old board under a garret window, and fell into a little crevice, which was almost filled up with moss and soft earth. The moss closed itself about him, and there he lay a captive indeed, but not unnoticed by God.

Within the little garret lived a poor woman, who went out to work every day; for she was strong and industrious. Yet she remained always poor; and at home in the garret lay her only daughter, not quite grown up, and very delicate and weak. For a whole year she had kept her bed.

Quietly and patiently she lay all day long, while her mother was away from home at her work.

### PEA WOKE UP

Spring came, and early one morning the sun shone brightly through the little window, and threw his rays over the floor of the room.

Just as the mother was going to her work, the sick girl fixed her gaze on the lowest pane of the window. "Mother!" she exclaimed, what

can that little green thing be that peeps in at the window? It is moving in the wind." The mother stepped to the window and half opened it. "Oh!" she said. "There is actually a little pea that has taken root and is putting out its green leaves. How could it have got into this crack? Well, now, here is a little garden for you to amuse yourself with." So the bed of the sick girl was drawn nearer to the window, that she might see the budding plant; and the mother went out to her work.

"Mother, I believe I shall get well," said the sick child in the evening; "the sun has shone in here so brightly and warmly to-day and the little pea is thriving so well; I shall get better, and go out into the warm sunshine again." "God grant it!" said the mother. She propped up with a little stick the green plant which had given her child such pleasant hopes of life, so that it might not be broken by the winds; she tied the piece of string to the window-sill and to the upper part of the frame, so that the pea-tendrils might twine round it when it shot up. And it did shoot up; indeed, it might almost be seen to grow from day to day. "Now, really here is a flower coming," said the mother one morning. She remembered that for some time the child had spoken more cheerfully, and during the past few days had raised herself in bed in the morning to look with sparkling eyes at her little garden which contained but a single pea-plant.

A week later the invalid sat up for the first time a whole hour, feeling quite happy by the open window in the warm sunshine, while outside grew the little plant, and on it a pink pea-blossom in full bloom. The little maiden bent down and gently kissed the delicate leaves. This day was like a festival to her.

"Our heavenly Father himself has planted that pea, and made it grow and flourish, to bring joy to you and hope to me, my blessed child," said the happy mother, and she smiled at the flower.

But the young maiden stood at the open garret window, with sparkling eyes and the rosy hue of health upon her cheeks, and folded her thin hands over the pea-blossom, thanking God for what he had done.

(Ginn & Co.)

—ANDERSON.

### A SEED

I held a little brown flax-seed in my fingers. I dropped it on the surface of the water in my glass, upheld by a thin layer of cotton-wool. In a few days white threads descended into the water from that little seed, and a green shoot rose into the air. Delicate leaves unfolded above and the threads below became a silky tassel of roots. The pretty

• plant grew and thrived. Day by day the leaves opened more and more. Buds and lovely blue flowers appeared, and as the sun shone in my window upon the growing plant, seeds were born and ripened and the wonder was multiplied. All had gone on by degrees. Step by step, cell by cell, it had been built up, and bud and flower and fruit had come in due course. So I knew what to expect in my little human plants. Not the ripe seed all at once; not the perfect conduct nor the whole lesson at the first trial; but slowly, one by one, thought by thought, effort by effort, the mind and heart will grow. Surely but gradually, day after day and year after year, the child will learn and become wise and good; for this is God's eternal law, that all things grow gradually in good order, from less to more.

By Permission of Lee & Shepard.

—LOUISA P. HOPKINS.

In March the teacher should distribute seeds—give instruction in planting—offer prizes for the best plant reared at home, and assist children in making flower-beds in the school yard.

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## SOIL

Once a week, or oftener during the spring term, arrange for "field lessons." The work of water in soil-making serves as an introduction to earth-study or geography, and can be best studied in the springtime, after the snow and the ice have disappeared, when the children can see the water at work wearing down hills, and furrowing out valleys.

The brook near the school can be studied as a type of larger streams.

Let children visit a stream after a heavy rain and find out why the water is so muddy. Which will a stream carry further, fine sand or pebbles? What colors have you seen in clay? How were the pebbles rounded and polished? Find crumbling rocks. What causes rocks to crumble? What is leaf mould?

Direct attention to the wasting sandstone, the slowly crumbling limestone, and the washing away of the river banks. Take home pebbles, crumbling rocks, etc.

The outdoor lessons should be followed by indoor discussions relating to the things studied.

Talk with pupils about the importance of soil. Animal life depends upon plant life, and plant life depends upon the existence of soil.

Review what was learned about the expansion of water when it freezes.

Pupils examine rocks out of doors, and tell what the seams or fissures are filled with. (Soil, roots, water). Suppose the seams were larger and more numerous? How can roots break rocks?

In "Boy Travelers in South America" you will find an interesting account of the way roots pull down walls in the tropics.

Shaler defines soil as the wreckage of the rocks as they wear down under the action of air, rain, and frost, the roots of plants, and the stomachs of earthworms.

Pupils, collect specimens of pebbles, clay, sand, quartz, and limestone.

### **Pebbles and Quartz**

Show pictures of huge rocks. Let children tell what happens when water freezes in the crevices of rocks.

Children, put pieces of sharp stones in a bottle containing water, give the stones a thorough shaking backward and forward every day for a week or two, and note the result. Examine the chipped-off sand grains, under a magnifying glass. Sand grains vary in color, some being transparent, others yellow, others milky white. Sand is used in the manufacture of mortar, plaster, and glass. Tell children about the beautiful colored glass made in Venice.

**Pebbles** are made from sharp stones which are rubbed against other stones by moving water, making sand, mud, and gravel.

**Quartz** is one of the hardest of the common minerals. It is

very abundant. Try to scratch glass with it. How many colors do you find? Violet, yellow, rose, smoky, etc. The well known forms of quartz are amethyst, carnelian, flint, jasper, onyx, and agate. Pure quartz is transparent like glass—resembles diamond. Give uses of quartz.

### **Feldspar**

Feldspar has a pearly luster. Its color is usually light, ranging from white to gray, pink, red, brown, and green. This is the mineral that gives the granites their characteristic colors.

Clay is in most cases derived from disintegrated feldspar. Porcelain, china, crockery, and bricks are made out of clay.

Feldspar is softer than quartz, harder than glass. Compare quartz with mica, and mica with feldspar. Continue the study of rocks and running water.

Show pictures of waterfalls, rapids, gorges, etc.

Read "The Cataract of Lodore" and try to imagine the wonderful work of water as a sculptor.

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### **EARTHWORMS**

He prayeth best who loveth best  
All things, both great and small;  
For the dear God who loveth us,  
He made and loveth all.

—COLERIDGE.

**Purpose of the Lesson.**—To encourage outdoor observation. To call attention to one of the earliest signs of spring.

**Preparation.**—Talk with children about preparing the soil to make garden, the need of plowing and raking to make it fine. Tell them we must become better acquainted with a little animal that is busy in nearly all parts of the world helping to loosen the earth as the plowman does.

**Field Lesson.**—Let children find out where and when the

earthworm works. In what kind of soil? What does it eat? How does it crawl? Find castings on the lawn or in the garden. Estimate the quality of the soil in the castings found in a space three or four feet square.

**Material and Care.**—Live worms may be obtained by digging for them in damp ground; they may also be found under boards or stones that have not been disturbed for some time. Worms can be kept in a large glass jar containing moist earth covered with dead leaves. Fasten netting over jar.

**Presentation**—Pour cold water over a piece of glass and let children see the worms crawling. Notice from day to day what they do with the leaves. Earthworms are nocturnal, and the children will be obliged to use a lantern in order to see them at work out of doors. After a heavy rain is the best time to watch them.

Let children examine the worms in the jar. Can they see, hear, and smell? Hide a piece of onion in the bottom of the jar and see if the worms will find it. Hold a light near the head of a worm. What did the worm do? It has no eyes, but the head end can distinguish light from darkness. The worm cannot hear at all, but it has a very delicate sense of touch. Account for the number found on the sidewalks after a rain. They get lost and dry up before they find a place to burrow.

**Body.**—The body tapers at each end and is made up of ring-like joints. Each ring has on its under side very small bristles which help the worm to move over the ground by keeping it from slipping.

**Habits.**—Worms move easily in loose soil, but find it impossible to pierce through hard or close earth on account of their soft bodies. They breathe through their skin and need moisture in the air or in their surroundings. Worms devour anything that can be eaten. They burrow into the soil to a depth of from three to eight feet. They eat their way through the



ground. Their tiny eggs are found in June near the openings of the burrows.

**Importance of the Work Done by Earthworms.**—Shells, bones, and leaves are constantly being covered with castings and these decay and enrich the soil. They take great quantities of leaves into their burrows and convert them into vegetable mould. The fine rootlets penetrate the earth to a great depth, by means of the worm-tubes, and obtain nourishment from fresh soil. The worms sift and loosen the soil so that the rain can sink into it and supply the roots with air and moisture. It has been estimated that there are about fifty-three thousand worms in an acre of ground and that they bring up about ten tons of soil to the acre yearly. For interesting facts concerning the work and habits of earthworms read "Vegetable Mould and Earthworms," and "The Great World's Farm."

COWPER SAYS:

"I would not enter on my list of friends  
(Though graced with polished manners and fine sense,  
Yet wanting sensibility) the man  
Who needlessly sets foot upon a worm.  
An inadvertent step may crush the snail  
That crawls at evening in the public path;  
But he that has humanity, forewarned,  
Will tread aside, and let the reptile live."

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## THE PUSSY WILLOW

The middle of March is a good time to surprise the "pussies."  
**Aim.**—To emphasize protection.

**Field Lesson.**—Take children to the willows.

Direct attention to the signs of spring.

**Material.**—Branches of the pussy willow in jars of water in a cool place. It is desirable to gather twigs from several willows in order to secure the two kinds of flowers. Staminate and pistillate.

**Preparation.**—Call attention to the long winter's rest. Why did your mother give you warmer clothing for the winter than you had during the summer? We must examine the buds and see how they were prepared for the cold weather.

READ AND DISCUSS THE FOLLOWING POEM TO DIRECT THE CHILDREN'S THOUGHTS:

Perhaps you may think, because I am buttoned  
And folded and wrapped in my little cloak so,  
That I always dress this way in all sorts of weather,  
With never a frill or a ruffle to show.

But it's only because I have come out so early,  
That only Jack Frost and the winds are astir,  
They're hard on the dresses, but under my wrappings  
Is my pretty new party dress hidden with fur.

—SELECTED.

**Plan of Work.**—Give each child an opportunity to observe the tough, varnished scales on the outside, the silk and fur next to the scales, and the long hairs which help to protect the buds. When the buds develop call attention to the pistils on the green (pistillate) catkins and the powder on the yellow (staminate) catkins. Let children draw stems and watch their development in water. Shake some of the pollen on the catkins containing the ovules and explain the importance of this yellow powder. Remind children that the two kinds of catkins are not found on the same shrub.

How do the seeds out of doors manage to get the pollen? Pupils may suggest the wind. Lead them to see that the willow containing pistillate catkins may not be near the willow with staminate catkins and the wind might not blow in the right direction when the pollen is ripe. Take children to the willows some day and find an answer to this question.

The color and fragrance of the willows attract the attention of many insects very early in the spring before the other flow-

ers venture above the ground. Children discover many bees on the catkins; they are smaller than honey bees and their bodies, especially the head and thorax, are covered with hairs. What do they get from the flowers? What do they give? They look as though some one had sprinkled them with "gold dust." The pollen grains are as precious as gold to the flowers.

**Use of Hairs on the Bee's Body.**—They gather up the pollen from the stamens and take it to the pistils containing the ovules,—they exchange pollen for nectar.

Find a tree or shrub that has been cut down to the earth; the new twigs develop rapidly into strong branches.

Let children stick willow twigs into moist ground near school or home and report observations. Examine fibrous rootlets growing from nodes of the twigs kept in water. Thrust a few branches into the earth upside down. Break branches to test strength and toughness. Direct attention to color of bark and the arrangement and shape of the leaves and pods. The opening seed pods are very pretty; each seed appears with a plume of long silky hairs to help it fly away to a new home and give it a chance to become a large willow.

**Characteristics of the Willow Family.**—Stamens and pistils are separate and borne on different trees and shrubs.

Difficult to classify because two trees must be studied in order to decide one species, and the trees are not always near together.

The leaves are simple, feather-veined. In color, many varieties of greens, ranging from blue to yellow.

Many species are satisfied with almost any kind of soil if they have plenty of water. The willow finds its greatest commercial value in the manufacture of wicker work. The catkins appear before or with the leaves. Nearly all the willows have soft, pliant, tough wood.

## **Important Points to Impress:**

Beauty of the catkins. Protection of buds. Leading thought. Stamens and pistils on different shrubs. How the flowers help the bees. How the bees help the flowers. Decorate board with pictures of pussy willow. Let children picture branches and catkins frequently.

Now sweet and low, the south wind blows,  
And through the brown fields calling goes

"Come, Pussy! Pussy Willow!

Within your close brown wrapper stir!

Come out and show your silver fur!

Come, Pussy! Pussy Willow!"

—SELECTED.

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## **TERMS USED IN DESCRIBING BUDS**

### **Buds, As to Position:—**

**Terminal:** At the end of the twig.

**Lateral:** Along the sides of the twig.

**Axillary:** In the leaf-axil; that is the upper angle between the leaf and the stem.

**Adventitious:** Buds produced irregularly on the branch or trunk.

**Accessory:** Buds clustered about the axillary buds.

**Nodes** are the points on the stem at which the buds are produced.

**Internodes** are the spaces between the nodes.

### **As to Arrangement:—**

**Opposite:** Two at the same node and opposite.

**Whorled:** Three or more arranged around the same node.

**Alternate:** In ranks along the stem, not being opposite or whorled.

## EASTER DRAWETH NEAR

Willow branches whit'ning 'neath the April skies;  
Sodden meadows bright'ning, where the warm sun lies,  
Robin Red-breast swinging, in a tree top high,  
Swollen brooklets singing—Easter draweth nigh!

Tender fledgelings hushing, eager to take wing;  
Trees and hedges flushing, with the joy of spring.  
Crocus buds up-springing, through the cold dark sward,  
Living incense bringing, to the the risen Lord.

—MARY M. REDMOND.

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## EASTER TIME

**Preparation.**—Let children get acquainted with the Pasque Flower in natural surroundings.

Review "The Laughing Chorus" and emphasize the awakening of all life after the winter's rest. Study of poem.

## OUR PASQUE-FLOWER

The winter snows were hardly gone,  
When in her robes of fur  
The pasque-flower came to cheer our hearts  
We ran to welcome her.

We knew her in her soft gray cloak,  
Her purple silken gown,  
And in the sunshine, too, we saw  
Her dainty golden crown.

"Oh, tell us, little flower," we cried,  
"How dared you come so soon?  
The winds are cold. The other flowers  
Will scarce be here till June."

"I came because the boys and girls  
Were waiting for the spring.  
I knew it would seem nearer if  
I helped by blossoming.

"I wrapped me in my warm fur coat,  
I donned my purple gown,  
And borrowed sunshine from the skies  
To wear upon my crown.

"I gathered courage then, and pushed  
The soft brown earth aside;  
For, since the warm spring sun had come  
What need to longer hide?

"I came to tell you how God's care  
Had kept the tiny seed,  
And that he cares much more for you.  
Will you my message heed?"

—From *Arnold's Waymarks for Teachers*.

Copyright, 1894, by Silver Burdett & Co.

In England it was once the custom to use this flower in coloring eggs for Easter. When did the flower make its appearance? How was it dressed? Why did it come? Repeat last stanza.

Bring an Easter Lily to the school-room and give the children an opportunity to feel the silent influence of this messenger of love and joy.

Christ it was who disdained not the use of objects and symbols, remembering that it was the childhood of the race. He it was who spake in parables and stories, laying bare soul of man and heart of nature, and revealing each by divine analogy. He it was who took the little ones in His arms and blessed them.

—KATE DOUGLAS WIGGIN.

Children plant bulbs and watch development. The lily appeals to the soul with more force than any other flower.

Repeat: "Consider the lilies of the field, how they grow: they labor not, neither do they spin. But I say to you, that not even Solomon in all his glory was arrayed as one of these."

The children saw the butterfly spread its wings from the chrysalis and the dragon fly come forth from the grub-case.

Is it possible that the pure white lily with its heart of gold was contained in the ugly brown bulb?

TEACHER, READ POEM TO DIRECT CHILDREN'S THOUGHTS.

### EASTER

Oh! the lilies are white in the Easter light,  
The lilies with hearts of gold;  
And they silently tell with each milk-white bell,  
The story an Angel told.

And they've whispered it long to the weak and the strong,  
The rich and the poor among men;  
Each Easter day till time dies away  
They will tell the tale again.

In the tomb new-made where the Christ was laid,  
The Angel told the story,  
Of how he rose from death's repose,  
The Son of Eternal Glory.

*Donahoe's Magazine.*

—MARGARET E. JORDAN.

What story did the angel tell? Emphasize the spiritual meaning of the lilies. Explain last stanza.

Teacher, read the story of the Resurrection in the Bible. The artists and the poets will help children to realize the significance of this great event in the world's history. Compare Bethlehem and Galilee. Recall the song of the angels at Bethlehem.

### THE LILY OF THE RESURRECTION

While the lily dwells in earth,  
Walled about with crumbling mould  
She the secret of her birth  
Guesses not, nor has been told.

Hides the brown bulb in the ground,  
Knowing not she is a flower;  
Knowing not she shall be crowned  
As a queen, with white-robed power.

Though her whole life is one thrill  
Upward, unto skies unseen,  
In her husks she wraps her still,  
Wondering what her visions mean.

Shivering, while the bursting scales  
Leave her heart bare, with a sigh  
She her unclad state bewails,  
Whispering to herself, "I die."

Die? Then may she welcome death,  
Leaving darkness underground,  
Breathing out her sweet, free breath  
Into the new heavens around.

Die? She bathes in ether warm;  
Beautiful without, within,  
See at last the imprisoned form  
All its fair proportions win!

Life it means, this impulse high  
Which through every leaflet stirs.  
Lo! the sunshine and the sky  
She was made for, now are hers!

Soul, thou too art set in earth,  
Heavenward through the dark to grow;  
Dreamest thou of thy royal birth?  
Climb! and thou shalt surely know.

Shuddering Doubt to Nature cries,—  
Nature, though she smiles, is dumb,—  
"How then can the dead arise?  
With what body do they come?"

Lo, the unfolding mystery!  
We shall bloom, some wondrous hour,  
As the lily blooms, when she  
Dies a bulb, to live a flower!

—LUCY LARCOM.



# EASTER

LYDIA AVERY COONLEY.

JESSIE L. GAYNOR.

This musical score is for the hymn "Easter" by Lydia Avery Coonley and Jessie L. Gaynor. It is written for a three-part setting: Soprano, Alto, and Piano. The key signature is D major (two sharps: F# and C#), and the time signature is common time (C). The score is organized into three systems, each with three staves. The Soprano part is on the top staff, the Alto part is on the middle staff, and the Piano accompaniment is on the bottom staff. The music consists of four measures per system. The Soprano and Alto parts feature a melody with various note values including quarter, eighth, and sixteenth notes, as well as rests. The Piano part provides a harmonic accompaniment with chords and moving lines in both the right and left hands. The notation includes standard musical symbols such as clefs, key signatures, time signatures, and various note and rest symbols.

1. Snow-drops, waking from your sleep,  
Violets, that from blue hoods peep,  
Bloodroot, blooming by the rill,  
Stately lily, daffodil,—  
What sweet message do you bring?  
Is it only: "This is Spring?"
2. Snow-drops, violets, lilies white,  
In the answer all unite:  
"Through the mold we heard a voice  
Calling to the earth: 'Rejoice!'  
So we left the ground to rise,  
Off'ring incense to the skies."
3. Little birds the chorus swell,  
Humming bees the tidings tell,  
Butterflies lift shining wings,  
Ev'ry child with gladness sings;  
With the flow'rs rejoicing, say:  
"Christ is ris'n on Easter day!"

Permission from "Songs in Seasons," of A. Flanagan Co., Publishers.

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**MAKE A SPECIAL STUDY OF THIS POEM :**

### NATURE'S EASTER-MUSIC

The flowers from the earth have arisen,  
They are singing their Easter-song;  
Up the valleys and over the hillsides  
They come, an unnumbered throng.

Oh, listen! The wild flowers are singing  
Their beautiful songs without words!  
They are pouring the soul of their music  
Through the voices of happy birds.

Every flower to a bird has confided  
The joy of its blossoming birth—  
The wonder of its resurrection  
From its grave in the frozen earth.

For you chirp the wren and the sparrow,  
Little Eyebright, Anemone pale!  
Gay Columbine, orioles are chanting  
Your trumpet-note, loud on the gale.

The buttercup's thanks for the sunshine  
The goldfinch's twitter reveals;  
And the violet trills, through the bluebird,  
Of the heaven that within her she feels.

The song-sparrow's exquisite warble  
Is born in the heart of the rose—  
Of the wild-rose, shut in its calyx,  
Afraid of belated snows.

And the melody of the wood-thrush  
Floats up from the nameless and shy  
White blossoms that stay in the cloister  
Of pine-forests, dim and high.

The dust of the roadside is vocal;  
There is music from every clod,  
Bird and breeze are the wild-flowers' angels,  
Their messages bearing to God.

"We arise and we praise him together!"  
With a flutter of petals and wings,  
The anthem of spirits immortal  
Rings back from created things.

And nothing is left wholly speechless;  
For the dumbest life that we know  
May utter itself through another  
And double its gladness so!

The trees have the winds to sing for them;  
The rock and the hill have the streams;  
And the mountain the thunderous torrents  
That waken old Earth from her dreams.

She awakes to the Easter music;  
Her bosom with praise overflows;  
The forest breaks forth into singing,  
For the desert has bloomed as the rose.

And whether in trances of silence  
We think of our Lord arisen,  
Or whether we carol with angels  
At the open door of his prison.  
He will give us an equal welcome  
Whatever the tribute we bring;  
For to Him who can read the heart's music  
To blossom with love is to sing.

—LUCY LARCOM.

What flowers have arisen? Where are they to be found?  
What are they doing? Repeat third stanza. What can you  
tell about the birds and the flowers named in the poem? What  
did each flower tell a bird? The birds and the flowers have  
many beautiful messages for poetic souls.

Wordsworth says:

The birds pour forth their souls in notes  
Of rapture from a thousand throats.

Emerson writes:

"I thought the sparrow's note from heaven,  
Singing at dawn on the alder bough."

"That's the wise thrush; he sings each song twice over,  
Lest you should think he never could recapture  
The first fine careless rapture."

—BROWNING.

"To me, the meanest flower that blows can give  
Thoughts that do often lie too deep for tears."

—WORDSWORTH.

Who are the wild flowers' angels? Who sings for the trees?  
the rock and the hill? the mountain? Give the pictures in  
order. What effect has the Easter music on the earth? Give  
the meaning of the last two stanzas.

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### THE STAR THAT BECAME A LILY

Once a beautiful star came down to earth. For a long time it had  
watched the children at play in the green fields, and the star said, "I

love those little Red children, I would like to go down and live with them."

So one night the star shot down, down, till at last it stood out upon a big plain. The people in the wigwam village saw it, and ran to look at it.

"I have come, O good people," said the star, "to dwell with you on the earth. I love to watch you in your wigwams. I love to see you make your birch canoes. I love to watch your children at their play. Tell me, then, where I may dwell. It must be where I can see you all, and where at night I can look up to my home in the skies."

Then one chief said, "Dwell here upon the mountain top; where you can overlook the plain. The clouds will come down and rest upon the high peaks, and each morning you may greet the sun."

"Dwell here upon the hillside," said another chief, "for there the flowers grow brightest, and the sun is warmest."

"Dwell in the forest," said a third chief, "for there the sweet violets grow, and the air is cool, and the smell of spruce is in the air."

But the star thought the mountain was too far away, as it could not see the children from such a height, and it was they it wanted to be near.

The hillside, too, the star thought, was far away, and the forest, it was sure, was too dark and dreary.

But one day, the star saw a beautiful little lake. The water was very clear,—one could see the skies and the clouds in it. At night the stars shone down into its waters. The water was soft and warm, and the star was pleased to see it ripple and dance. It liked to see the sunlight glimmer on the waters.

The children loved the lake, too; they played all day on its banks, and often paddled out upon it in their little canoes.

"I will dwell right here," the star said, "for then I can be near the children."

And so, when the sun had set, the star floated down upon the waters. It sent its rays away down beneath the waters; and the Red children thought these rays took root, for the very next morning there was a beautiful lily upon the waters. Its roots reached away down into the rich earth, its petals were pure white, and it had a heart of rich yellow gold.

"No flower has a perfume so sweet," the children cried.  
Then they rowed out to look at it.

"It is the star," the children said; "it will dwell with us forever, and we will call it the Lily Star."

Then the children rowed back to the shore. They did not pluck the lily, but each morning they went to see it.

"Dear, beautiful lily!" they would say.

By and by it opened wide its petals; and the air was filled with sweetness.

Then other lilies grew up around it; and after a time these Water Lilies, or Lily Stars, as the children called them, were floating on the waters of the lake everywhere.

—DOROTHY BROOKS.

Children, reproduce story after free discussion. Sketch hill-side, mountain, lake, etc.

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## FLOWER-DE-LUCE

In the twelfth century King Louis made this flower the national emblem of France; he strewed it on his son's mantle at the coronation in the Rheims cathedral.

Iris is the classical name. Blue Flag is the common name.

Let children visit a marshy meadow some day and get acquainted with the Flower-de-luce.

Take home two or three plants.

Examine the rhizome, the strong, sword-like, parallel-veined leaves guarding the purple flower. Observe the three arching petals and the three sepals, each sepal bearing a tuft of yellow fuzz arranged to catch pollen.

Observe also three more petal-like parts, the stigmas of the three-cleft pistil.

Let older pupils study the "Flower-de-luce." Longfellow will help them to see the beauty of this common flower.

Visit the Blue Flag in its home again after having studied the poem and the legend, "Iris," and see the reeds, rushes, and dragon-flies.

## THE RAINBOW QUEEN

A great many years ago, when even grown-up people were not very wise, they used to look up to the mountains and wonder if their tops reached the sky. Sometimes a big cloud would rest upon a mountain-top, and when the sun shone upon it, this cloud would look like gold. Sometimes rain would fall from the cloud, even when the sun shone upon it, and then the beautiful rainbow would shine out. By and by these people, called Greeks, began to think that a great king dwelt upon the mountain-top. They named this king Jupiter. They thought the golden cloud was his palace. Of course, there was a beautiful queen in the golden palace; they named her Juno. She had many princes and princesses about her, who loved her and were always glad to serve her; but of all the princesses, none were so beautiful as Iris. For her the queen made a rainbow bridge, and no one but Iris was allowed to step upon the beautiful arch. There are many old Greek stories about this princess and her journeys to the earth over the rainbow bridge. One of them is about a flower, that is named after her.

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### IRIS

Princess Iris loved the waters of the earth, for in them she could always see the bright rainbow colors of her own magic bridge. One day she wished to come down, to wander by the bright waters of the rivers and lakes. So she wrapped herself in a red and purple cloud, and stepped into her golden chariot drawn by two handsome peacocks, whose splendid tails spread out in the sun and shone like the colors in the rainbow itself. On her way, she shook water-drops from the clouds to see them sparkle in the light, as they went splashing down upon the earth. Down she came to the earth, and by the side of a lake, she stepped from her golden chariot. Here she found blue flowers, growing stately and tall. "As blue as the blue waters of the sea," she cried. She bent over the bright blue flowers, and touched their petals. Down from her hair the raindrops fell; straight down upon one petal of every flower. And there they are sparkling and shining to this very day, showing the colors of the rainbow when the warm sun shines down upon it. Soon after that some children went down to the water to play. "See, see!" they cried, "a blue flower, as blue as the blue in the rainbow. Iris herself must have been here. Here are her own

beautiful colors." And so, to this day, the tall blue flower that grows by the water's edge, half hidden among its own sword-like leaves, is called Iris, in memory of Iris, "the rainbow queen."

—Adapted From the Story as Told by MARA PRATT.

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## STUDY OF POEM.

### FLOWER-DE-LUCE

Beautiful lily, dwelling by still rivers,  
Or solitary mere,  
Or where the sluggish meadow-brook delivers  
Its waters to the weir!

Thou laughest at the mill, the whirl and worry  
Of spindle and of loom,  
And the great wheel that toils amid the hurry  
And rushing of the flume.

Born in the purple, born to joy and pleasance,  
Thou dost not toil nor spin,  
But makest glad and radiant with thy presence  
The meadow and the lin.

The wind blows, and uplifts thy drooping banner,  
And round thee throng and run  
The rushes, the green yeomen of thy manor,  
The outlaws of the sun.

The burnished dragon-fly is thine attendant,  
And tilts against the field,  
And down the listed sunbeam rides resplendent  
With steel-blue mail and shield.

Thou art the Iris, fair among the fairest,  
Who, armed with golden rod  
And winged with the celestial azure, bearest  
The message of some god.

Thou art the Muse, who far from crowded cities  
Hauntest the sylvan streams,  
Playing on pipes of reed the artless ditties  
That come to us as dreams.



O flower-de-luce, bloom on, and let the river  
Linger to kiss thy feet!  
O flower of song, bloom on, and make forever  
The world more fair and sweet.

—H. W. LONGFELLOW.

The home of this flower? Do you see the “still river”? the meadow brook? the mill-race? the great mill-wheel toiling to store up force from the river to do its great work? Observe some of the delicate fabrics in dress goods. What is the color of royalty? Without noise or worry the flower obtains strength from the river to weave a dress far surpassing in beauty the work of the mill-weaver. Why does the flower laugh at the mill?

In the fourth stanza Longfellow refers to feudal times when the majority of the people flocked to the banners of the lords or knights to serve and protect them. A lord or knight was often defended by bands of outlaws. The rushes crowd around the flower to protect it. Do they remind you of soldiers? Why? Dragon-fly tilts against the field—tilt refers to a military exercise of thrusting with a lance—a tournament. Mail—defensive armor. Iris was Juno’s messenger. Read legend Iris. Muse: The sweet music played on the reed pipes beside the streams were supposed ages ago to inspire the poets. Why called flower of song? How long has it been a national emblem?

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## BIRDS

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### SWEET WARBLERS

Sweet warblers of the sunny hours,  
Forever on the wing,  
I love thee as I love the flowers,  
The sunlight and the spring.

In the green and quiet places,  
Where the golden sunlight falls,  
We sit with smiling faces  
To list their silver calls.

And when their holy anthems  
Come pealing through the air,  
Our hearts leap forth to meet them  
With a blessing and a prayer.

Amid the morning's fragrant dew,  
Amidst the mists of even,  
They warble on as if they drew  
Their music down from heaven.

—*Birds and All Nature.*

Copyright, 1900, by A. W. MUMFORD.

In order to prepare the children to watch with interest the spring work in bird land, it will be advisable to have them examine a few typical nests. They cannot fail to be impressed with the wonderful skill and ingenuity exhibited in the construction of bird homes found in every locality.

READ:

### THE EMPTY NEST

We found it under the apple tree  
Torn from the bough where it used to swing.  
Softly rocking its babies three,  
Nestled under the mother's wing.

This is the leaf all shrivelled and dry  
That once was a canopy overhead;  
Doesn't it almost make you cry  
To look at the poor little empty bed?

All the birdies have flown away;  
Birds must fly or they wouldn't have wings,  
Don't you hope they'll come back some day?  
Nests without birds are lonesome things.

—EMILY MILLER.

Secure, if possible, a nest made by the Baltimore oriole. Where was it found? Lead children to see the advantage of this position. Why is this little hammock so closely woven and compact at the bottom? What tools had the bird to work with? Take the nest to pieces and notice the material used. While examining the nest of this artistic weaver the children are amazed to see the knots tied so securely and the cord, hair and milkweed fibre woven together so skillfully.

The nest of the humming-bird is also a model of artistic skill, a small cup about half the size of a hen's egg, made of a white felt-like substance covered with gray lichens as beautiful as its owner. The nest of the wood pewee closely resembles the humming-bird's and is more easily found. Compare the nest of the robin or bluejay with the oriole's or pewee's nest.

Colored pictures of birds, such as those issued by Nature Study Publishing Co., will be found exceedingly valuable in familiarizing children with the bird's form, color, and environment. The metallic colors, glossy plumage, and delicate markings of many birds will be more fully appreciated by examining stuffed specimens, but as they suggest the loss of life, colored pictures and outdoor observation, combined with a study of the living specimens brought to school occasionally (pigeon, canary, parrot, and chicken), will prove more desirable for children in the lower grades.

In the spring of the year the birds wear their brightest plumage and sing their sweetest songs. Their activity while selecting a suitable spot and suitable material for the new home affords children an excellent opportunity to observe their most interesting habits at this season. Encourage children to watch daily for their arrival.

#### THE HUMMING-BIRD

"A flash of harmless lightning,  
A mist of rainbow dyes,  
The burnished sunbeam brightening,  
From flower to flower he flies."

JOHN B. TABB, p. 59.

Small, Maynard Co.

"Cleaving the clouds with their moon edged pinions,  
High over city and vineyard and mart;  
April to pilot them; May speeding after;  
And each bird's compass his small red heart."

—EDWIN ARNOLD.

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## THE BLUE BIRD

Every one loves the bluebird. It is because he is so gentle, modest, brave, and useful. He is called the color-bearer of the spring songsters, the banner-bearer of Birdland, the minstrel of April, and Mabel Osgood Wright says he is a model citizen.

He belongs to the Thrush family.

**Song.**—Teach the children to distinguish his liquid note in the spring choir. Burroughs tells us that he calls, Bermuda! Bermuda! or Purity! Purity!; other admirers think the plaintive warble sounds like, Dear! Dear! Think of it! Think of it!

What message has he for your ears?

This is Eben Rexford's tribute:

## THE BLUE BIRD

Listen a moment, I pray you; what was that sound that I heard?  
Wind in the budding branches, the ripple of brooks, or a bird?  
Hear it again above us! and see a flutter of wings!  
The blue bird knows it is April, and soars toward the sun and sings.

Never the song of the robin could make my heart so glad;  
When I hear the blue bird singing in spring, I forget to be sad.  
Hear it! a ripple of music! sunshine changed into song!  
It sets me thinking of summer when the days and their dreams are long.

Winged lute that we call a blue bird, you blend in a silver strain  
The sound of the laughing water, the patter of spring's sweet rain.  
The voice of the winds, the sunshine, and fragrance of blossoming things.  
Ah! you are an April poem, that God has dowered with wings!

—EBEN EUGENE REXFORD.

**Appearance.**—Let children discover the following facts:

The bluebird is smaller than the robin and larger than the canary. The throat and breast are a reddish brown with white feathers on the under side of the body and the back and wings are a clear bright blue.

**Nest.**—It chooses a bird house made by some friend, a hole in a tree or post, the deserted nest of a woodpecker; almost anything that will afford protection will do.

The eggs are light blue, four to six in number.

**Food.**—Fruit, spiders, and all sorts of injurious insects.

It generally remains with us until very late in autumn. Before it leaves us its song is very sad and plaintive.

Compare the bluebird with the robin.

Give gems of bird poetry; connect the work with the reading, language and literature.

Who called the bluebird the angel of the spring? The peace harbinger? Who said, "The warble of this bird is innocent and celestial like its color?"

Read "Wake Robin"—Burroughs.

## IN APRIL

April is here!

Listen, a bluebird is caroling near!  
Low and sweet is the song that he sings,  
As he sits in the sunshine with folded wings,  
And looks from the earth that is growing green  
To the warm blue skies that downward lean,  
As a mother does, to kiss the child  
That has looked up into her face and smiled.  
Earth has been sleeping and now she wakes  
And the kind sky-mother bends and takes  
The laughing thing in her warm embrace.  
And scatters her kisses over its face,  
And every kiss will grow into a flower  
To brighten with beauty a coming hour.

—EBEN EUGENE REXFORD.

## THE BLUE BIRD

High up in the clear sky flies the bluebird, among the first to herald the coming spring. He flies swiftly above the clouds, in sunshine and in storm, singing a joyous carol. His wings are the color of the deep blue sky, and here he and his tribe stay with their cheerful song from March to October, first to come, and last to go, and always finding something to be happy about, even in the early spring or the late autumn. He is like the cheerful and trustful soul that pursues its onward flight above the clouds of trouble through the clear sky of love and trust. It sings its sweetest songs when the cold winds of discouragement and disappointment blow about its path. It reaches its home, at last, safe and happy because trusting in God's care, and finds its shelter and food, though the whole earth looks empty and barren. It flies at the call of God, who never misleads it, but guides it through the trackless air safely to the very place where it would go. \* \* \* \*

By permission of Lee & Shepard.

—LOUISA P. HOPKINS.

## BIRDIES IN THE GREENWOOD

FROM KOEHLER

A. WEBER.



- 1 Birdies in the greenwood  
Sing so sweet and clear,  
Of the merry sunshine  
And the flowers so dear.  
La, la, la, la, la, la, la, la,  
La, la, la, la, la, la,  
La, la, la, la, etc.

2 Birdies in the greenwood  
Built their little nest,  
Never do disturb them.  
In their place of rest.—Cho.

3 Birdies in the greenwood  
Sing themselves to sleep,  
With each head tucked under,  
Snug and warm they keep.—Cho.

From *Songs, Games and Rhymes*, by EUDORA HAILMANN. By permission of Milton Bradley Co. and Thomas Charles, Chicago, Publishers.

## SONG SPARROW

The song sparrow in his plain brown dress will return very early in an ecstasy of delight. What news does he bring? Thousands of visitors are on the way dressed in the loveliest colors. Song sparrow is telling the trees, the children in particular, and everyone in general.

How is he dressed? Above, he is brown and gray with many stripes. Beneath, gray, slightly striped with dark forming two spots on his breast; his head, wings, and tail are brown. He has a short, thick, brown bill.

**Habits.**—He is a sweet singer and pours out his song early and late until he changes his dress in August. In a few weeks he begins again and continues until November. The nest is made of dry grass and is placed in a secluded spot on the ground or in a low bush. The four or five speckled eggs are very pretty.

READ:

### "BIRDS CANNOT COUNT"

*First Boy.*

Six eggs there were, in the nest of a bird,  
Under four brown wings' protection.

"Now, 'birds can't count,'" said John, "I've heard."  
And so, without saying another word,  
He took one for his collection.

*Second Boy.*

Five eggs there were in the sheltered nest  
Karl knew from John's direction,  
"As 'birds cannot count'" said Karl "'tis best  
To take one of these to go with the rest  
Of the kinds in my collection."

*Third Boy.*

Four eggs there were in the nest on the tree.  
Said Dick: "Upon reflection,  
As 'birds cannot count,' I think it will be  
No harm to them and just right for me,  
To take one for my collection."

*Fourth Boy.*

Three eggs there were in that harassed nest;—  
And I don't know what connection  
There was to the thoughts in the poor birds' breast  
If birds cannot count,—but they left the rest,  
For anybody's collection.

*All.*

Oh, egg-collectors, don't you suppose  
You might have some slight objection,  
Though you should forget how to count, if those  
Who look at your treasures, should, as they chose,  
Each take one from your collection.

—*Popular Educator.*

It is claimed by the Directors of the New York Zoological Park that our birds have decreased forty-six per cent. during the past fifteen years in thirty states and territories.

According to this report it is certainly time to make an extra effort to draw the birds closer about our homes by providing shallow dishes of water, nesting places, materials for nest building, etc.

Olive Thorne Miller tells us that a robin has been known to dip herself in water, fly directly into the dust of the street and then pick off the mud from her feet and feathers. A pan of



mud placed in a convenient spot would save the bird this trouble. Strings, twine, yarn, etc. would also be appreciated for building purposes by many of our sweet singers.

It is to be hoped that Shelly's prediction may soon be fulfilled:

"No longer now the winged habitants,  
That in the woods their sweet lives sing away,  
Flee from the form of man; but gather round,  
And prune their sunny feathers on the hands  
Which little children stretch in friendly sport  
Towards these dreadless partners of their play."

—*From Demon of the World.*

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## ROBIN

In March, remind children to watch for Robin Redbreast with his calm, dignified air. Report when and where he is first seen.

**Describe his spring dress.**—Olive gray above, with long, slender, brown wings; brick-red breast; throat, black and white; head and tail black, and bill, yellow.

**Song.**—He is up before daybreak and makes the woods ring with his cheerful song—"Cheerily, cheerily, cheer up, cheer up!" What is his call note? "Quick! Quick!" Many people imagine that he says during the day, "Do you think what you do?" Children listen for his rain song.

**Habits.**—Call attention to his movements. He hops or runs along in the yard and turns his pretty head from right to left and listens. Every few minutes he pulls up a worm. His flight is rapid, straight, and decided. He eats grubs, worms or insects until the fruit is ripe. His legs are of medium length and his four toes are placed on a level. He is a percher.

**Nest.**—Children watch, if possible, the robins carrying sticks and straws for the foundation, then the mud for plastering, and

finally moss or grass for lining. How long did it take to build the nest? Did they begin early? Did they sing while at work? Where do they build? In a hedge, strong vine or tree? Teacher sketch nest with eggs. Blue-green. Generally four in number.

CHILDREN MEMORIZE POEM :

### THE BUILDING OF THE NEST

They'll come again to the apple-tree—  
Robin and all the rest—  
When the orchard branches are fair to see,  
In the snow of the blossoms drest;  
And the prettiest thing in the world will be  
    The building of the nest.

Weaving it well, so round and trim,  
Hollowing it with care,—  
Nothing too far away for him,  
Nothing for her too fair,—  
Hanging it safe on the topmost limb,  
    Their castle in the air.

Ah! mother-bird, you'll have weary days  
When the eggs are under your breast,  
And shadow may darken the dancing rays  
When the wee ones leave the nest;  
But they'll find their wings in a glad amaze,  
    And God will see to the rest.

So come to the tree with all your train  
When the apple blossoms blow;  
Through the April shimmer of sun and rain,  
Go flying to and fro;  
And sing to our hearts as we watch again  
    Your fairy building grow.

—MARGARET SANGSTER.

What is the character of our little friend? Cheerful, confiding, industrious, and brave. Fights jays, squirrels, and

other enemies in defense of young. Sings early and late, even in the rain. Builds near our homes, sometimes in porches.

Teacher, tell stories and read poems about the robin. Lead children to see the birds with the poet's eye.

### ROBIN'S RETURN

Robin on the tilting bough,  
Redbreast rover, tell me how  
You the weary time have passed  
Since we saw and heard you last.

"In a green and pleasant land,  
By a summer 'sea-breeze fanned,  
Orange trees with fruit are bent,—  
There the weary time I've spent."

Robin, rover, there, no doubt,  
Your best music you poured out;  
Piping to a stranger's ear,  
You forgot your lovers here.

"Little lady, on my word,  
You do wrong a true-hearted bird!  
Not one ditty did I sing,  
'Mong the leaves or on the wing,

In the sun or in the rain;  
Stranger's ears would list in vain,  
If I ever tried a note,  
Something rose up in my throat.

"'Twas because my heart was true  
To the North and springtime new;  
My mind's eye, a nest could see  
In yon old, forked apple tree!"

—EDITH THOMAS.

NOTE.—It is said that the robin does not sing during its winter stay in the South.

## WE ARE RED BIRDS

*Moderato.*



We are red birds, we are red birds,  
So fearless and bold;  
We are out in all weather,  
And fear not the cold.

We are blue birds, we are blue birds,  
So pretty and light;  
We are busy, we are happy,  
Be the sky dark or bright.

We are orioles, we are orioles;  
Our nests are hung high,  
Where the soft breezes sing us  
A soft lullaby.

We're canaries, we're canaries,  
We care not to roam;  
We love our kind friends,  
And stay always at home.

We are humming-birds tiny,  
Deep purple our breasts,  
'Mid the blossoms so fragrant  
We build our small nests.

—From *Songs for Little Children*, ELEANOR SMITH.

By permission of Milton Bradley Co. and Thomas Charles,  
Chicago, Publishers.

## CRADLE SONG

What does little birdie say  
In her nest at peep of day?  
"Let me fly," says little birdie;  
"Let me rise and fly away."  
"Birdie, rest a little longer,  
Till the little wings are stronger."  
So she rests a little longer,  
Then she flies away.

What does little baby say  
In her bed at peep of day?  
Baby says, like little birdie,  
"Let me rise and fly away."  
"Baby, sleep a little longer,  
Till the little limbs are stronger,"  
If she sleeps a little longer,  
Baby, too, shall fly away.

—ALFRED TENNYSON.

## BIRD GAME

(For this game divide the children into six groups, letting each group represent one kind of bird. The children, in their seats, sing or recite the first verse together and then all fly away to some selected part of the school-room. The first group flies back to place, sings or recites its verse and then sits down. The other groups follow in order, and when all are seated the last verse is given in concert, after which all the children fly freely about the room for a time, playing birds, *being* birds, and dramatizing bird life according to inclination and ability).

Brave little Snow-birds in white and gray!  
Summer is coming so *we* cannot stay!  
The place for our nesting is far in the North,  
You think it is cold here, but it is our South.

We are Tree Creepers, so speckled and small,  
We were almost the last to go south in the fall;  
We were almost the first to come back, and you see  
We go creeping around and around up the tree.

We are Grackles, so shiny and black;  
We wonder if farmers are glad we are back!  
They will hear our gay chatter from night until morn  
As we keep a sharp eye on their wheat and their corn.

And now Robin Redbreast comes back with the spring.  
On the high tree-tops he'll whistle and sing.  
He knows everybody is happy to see  
Both him and his mate on her nest in the tree.

Blithe, bonny Bluebirds the south wind has sent,  
Each hoping to find a new bird-house to rent.  
Or else a snug hole in a post, fence or tree,  
Where wee baby Bluebirds well sheltered may be.

Gay flashing Orioles, whistling clear,  
Tell you that springtime is certainly here.  
We wait for the elm-leaves to cover the nest  
On the high swaying branches which we love the best.

Swift darting swallows way up in the sky  
Tell that the summer is very close by.  
Frosts must be over and warm weather come  
Before we risk leaving our safe southern home.

Now the days are full of music!  
All the birds are back again;  
In the tree-tops, in the meadows,  
In the woodlands, on the plain.  
See them darting through the sunshine!  
Hear them singing loud and clear!  
How they love the busy springtime,  
Sweetest time of all the year!

—KATHERINE BEEBE. *Primary Education.*

## SNAILS

**Aim.**—To lead children to observe habits and adaptation of structure to environment.

To awaken an interest in soft-bodied animals. (Mollusks).

**Preparatory Work.**—Talk with pupils about the kinds of material used in building homes for people, birds, and other animals. Ash children to look under leaves, stones, and logs in damp, shady places for snails and shells.

**Material.**—Living snails, together with some of the leaves or other food they like, in a glass jar with damp earth.

Deserted shells of different sizes and colors.

**Plan of Work.**—Direct attention to the color and form of snail shells. Are people's houses all of the same color? same shape?

Children group shells according to color. The owners of the white houses have been dead some time, no doubt, because their homes look as though they needed painting.

Are people's houses all made of the same material? Pour strong vinegar or acid on different substances, as granite or quartz. What happens when it is poured on the snail shell? It bubbles or effervesces. This tells us that the material consists of lime-carbonate.

**Shape.**—The shell is spiral. Each turn is called a whorl; the largest one is the body whorl. The spaces between the whorls are the sutures, and the upper part is the spire. The apex is the tiny shell that covered the young snail. Place the shell containing the living snail upon a piece of warm glass, or in a glass of tepid water, and the little creature will be likely to make his appearance.

The frugal snail, with forecast of repose,  
Carries his house with him where'er he goes;  
Peeps out, and if there comes a shower of rain,  
Retreats to his small domicile amain.

Touch but a tip of him, a horn,—'tis well,—  
He curls up in his sanctuary shell.  
He's his own landlord, his own tenant; stay  
As long as he will, he dreads no quarter-day;  
Himself he boards and lodges; both invites  
And feasts himself; wheresoe'er he roams  
Knock when you will, he's sure to be at home.

—CHARLES LAMB.

How does the snail walk? Look on the under side of the glass and watch his broad muscular foot which creeps along with a gliding motion. As it travels it covers the glass with slime or mucus from its body.

How does it eat? Let children feed the snail peavine, toadstool, cabbage, etc. It has a long, ribbon-like tongue covered with points that serve the purpose of teeth. The snail moves the ribbon backward and forward against the upper jaw until he cuts his food.

Where are the eyes? Notice the four feelers, two of which are much shorter than the others. The eyes are situated at the ends of the long feelers.

How does the snail breathe? The little creature has a breathing hole under the edge of the shell, which leads to a small sac or lung in the mantle.

**Habits.**—Lives on decaying leaves and other vegetable matter and can easily be found crawling about after a rain. The young hatch from eggs. The shells of young snails are transparent. In the fall the snail withdraws into its shell, seals up the opening by a layer of slimy mucus which forms a thin membrane. It hibernates during the winter and when spring comes it opens its door and stretches out its head.

Lead children to see how well adapted the hard shell is to a soft bodied animal.

Children, bring cowry, conch, and other ornamental shells from their homes and observe their exquisite beauty.



"See what a lovely shell!  
Small and pure as a pearl.  
Frail, but a work divine,  
With delicate spire and whorl;  
A miracle of design.  
The tiny cell is forlorn  
Void of the little living will  
That made it stir on the shore;  
Did he stand at the diamond door  
Of his house in a rainbow frill?  
Did he push when he was uncurled  
A golden foot of a fairy horn,  
Thro' his dim water world?"

—TENNYSON.

**Uses.**—In European countries, especially in France and Italy, several kinds of snails are used for food and are very frequently pictured on the sign-boards of restaurants. In Paris it is estimated that one hundred thousand pounds of snails are eaten daily. In Pompeii great heaps of shells may be seen.

## POND SNAILS

The pond snail may be kept in a jar of water. The general form of the shell is like a cone and is composed of whorls. This snail has two feelers and the eyes are situated at the base of the feelers. The little animal finds it necessary to come to the surface of the water for fresh bubbles of air occasionally.

Compare with garden snail. Let children picture shells. The clam, mussel and oyster shells divide into two parts and are called bivalves. The snail and its relatives having but one shell are called univalves.

I have seen  
A curious child who dwelt upon a tract  
Of island ground, applying to his ear  
The convolutions of a smooth-lipped shell;  
To which, in silence hushed, his very soul  
Listened intensely; for from within were heard  
Murmurings whereby the monitor expressed  
Mysterious union with its native sea. —WORDSWORTH.

## STUDY OF POEM.

### THE CHAMBERED NAUTILUS

This is the ship of pearl, which, poets feign,  
Sails the unshadowed main,—  
The venturous bark that flings  
On the sweet summer wind its purpled wings  
In gulfs enchanted, where the Siren sings,  
And coral reefs lie bare,  
Where the cold sea-maids rise to sun their streaming hair.  
Its webs of living gauze no more unfurl;  
Wrecked is the ship of pearl!  
And every chambered cell,  
Where its dim dreaming life was wont to dwell,  
As the frail tenant shaped his growing shell,  
Before thee lies revealed,—  
Its irised ceiling rent, its sunless crypt unsealed!  
Year after year beheld the silent toil  
That spread his lustrous coil;  
Still, as the spiral grew,  
He left the past year's dwelling for the new,  
Stole with soft step its shining archway through,  
Built up its idle door,  
Stretched in his last-found home, and knew the old no more.  
Thanks for the heavenly message brought by thee,  
Child of the wandering sea,  
Cast from her lap, forlorn!  
From thy dead lips a clearer note is born  
Than ever Triton blew from wreathed horn!  
While on mine ear it rings,  
Through the deep caves of thought I hear a voice that sings:—  
Build thee more stately mansions, O my soul,  
As the swift seasons roll!  
Leave thy low-vaulted past!  
Let each new temple, nobler than the last,  
Shut thee from heaven-with a dome more vast,  
Till thou at length art free,  
Leaving thine outgrown shell by life's unresting sea!

—OLIVER WENDELL HOLMES.

The poet once wrote a letter to the Cincinnati school children in which he said, "If you will remember me by 'The Chambered Nautilus,' 'The Living Temple' and 'The Promise,' your memories will be a monument I shall think more of than any bronze or marble." "The Chambered Nautilus" was his favorite. He wrote the last stanza in the album of Princess Louise.

Why called Nautilus? Why "poets feign"? "The animal frequents deep waters, and though it is occasionally found at the surface, it sinks upon the least alarm, so that it has been rarely captured, although the shell is so common."—Elements of Zoology. Why "venturous bark"? It is not afraid to sail on its purple wings into enchanted gulfs. Sirens—sweet singers in the ocean that were supposed to lure to destruction. Not afraid of coral reefs or mermaids. What was the result of this fearlessness and daring?

"Why "dim, dreamy life"? The Nautilus and all other mollusks have few nerves. Compare with the activity of birds. Why "irised ceiling"? Iris rainbow queen—note color of shells. "Silent toil" and "lustrous coil"—explain. What did the poet hear while studying the shell? Heavenly message. Tritons were the bold trumpeters of the sea-god Neptune.

What is the message? The meaning? It told the poet to grow. Let every year be a mansion with a more beautiful dome. Live nearer to God. Then death will be leaving an outgrown shell. Commit last stanza.

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## THE FROG

**Material.**—A live frog in a large glass jar containing a sod of grass. Cover jar with coarse netting.

Some frog's eggs in a jar of water. Care should be taken not to place too many eggs in the jar and not to expose eggs to direct sunlight.

Pupils should be encouraged to assist the teacher in procuring material for class work. In March or April tiny dark eggs enclosed in a gelatinous membrane may be found in the shallow water of ditches and along the edges of ponds.

**Habits and Structure.**—Let the children bring in a variety of live insects. Many destructive kinds can easily be found. Watch the frog eating his dinner. How many insects did he catch in a minute?

The tongue is very curious. It is two-forked and has its base in front instead of at the back of the mouth. The tip points toward the throat and is covered with a thick, sticky substance resembling glue.

Notice the broad, short body and the large triangular head.

Let the children study the frog's movements in a large dish of water. Direct attention to the limbs,—hind limbs long, each foot five-toed and webbed; the fore limbs short, each foot four-toed. Watch the frog leaping when taken from the water. Compare movements of rabbit and frog.

Let children notice the difference in color of the back and the under portion of the body. Compare with color of surroundings near ponds and streams. Who can think of a use for the green and brown coloring? Blends with surroundings. How many have seen frogs diving into the mud to escape from their enemies? How many have seen them eating worms?

Notice the large projecting eyes and the small piece of thin, tight skin back of each eye, stretched over a hard ring that forms the ear-drum.

**Breathing.**—The frog breathes by means of his skin as well as by his lungs. He closes his lips, expands the cavity of the mouth, and draws air in through his nostrils. He swallows air as a person swallows food, and if his mouth were kept open any length of time he would suffocate.

Where are the frog's teeth? Open his mouth carefully and

pass your fingers along the upper and lower jaws and find out.

Why do frogs frequent ponds and ditches? Without plenty of moisture the skin dries and shrinks and the frog soon dies.

In the winter they find a resting place in the mud, and sleep there securely until the return of spring. How many have seen the frog shedding its coat? Imitate the frog's croak. Notice the position a frog takes while at rest; while jumping.

Frogs destroy large numbers of slugs and insects and serve in their turn as food for other animals. Fishes, birds and snakes devour thousands of tadpoles and frogs. In Europe and America frogs' legs are sold for food.

In studying the life history of the frog we seem to have before us the life of two different animals. Its place of abode, its habits, its food, and even its structure, are different in the early period of its existence from what they are later. Develop facts by questioning.

**Eggs.**—The children have been watching the development of the eggs.

What is the use of the jelly-like mass in which the eggs are deposited? It not only protects the eggs from cold and from being washed away, but it serves as food for the life it contains. As soon as the children see the little wigglers in the jar they should provide them with a few water plants.

Notice the small tufts (gills) on each side of the head which enable the tadpole to breathe in the water.

Observe change in the shape of the body, appearance of the legs, hind ones appearing first. The body continues to change shape, the tail is absorbed, the legs grow longer, and in place of gills, lungs are formed; our tadpole has become a frog and is ready for the land.

Compare tadpole with frog in regard to structure and habits.

If two jars were arranged, one with frogs' eggs and the other with toads' eggs, (toads' eggs are found in strings and are some-

what darker in color than frogs' eggs) the comparison would certainly prove interesting.

A record of the dates of changes in appearance from day to day placed on the blackboard will lead to careful observation. Compare frog with toad.

Let children study frogs and toads in natural environment.

Watch to see the toad shedding his warty skin and report observation.

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## THE WIND

Lead children to talk about the wind. What is wind?

From which direction is the wind blowing to-day? In what way does spring differ from winter?

What work has the wind to do in spring?

The wind melts ice and snow; brings the rain clouds; wakens the life in roots, seeds, and buds, and drives the clouds away.

What work has the wind to do in autumn?

Let children tell about the wind shaking down the leaves and nuts, scattering seeds, etc.

When does a windmill turn most rapidly? Of what use is the wind to sailors? What results to air, water, and iron when heated? Why do soap bubbles rise? Name all the uses of wind that you know. Question pupils to incite continued observation.

CHILDREN MEMORIZE:

## THE WIND

I saw you toss the kites on high  
And blow the birds about the sky;  
And all around I heard you pass,  
Like ladies' skirts across the grass—  
O wind, a-blowing all day long!  
O wind, that sings so loud a song!

I saw the different things you did.  
But always you yourself you hid.  
I felt you push, I heard you call,  
I could not see yourself at all—  
    O wind, a-blowing all day long!  
    O wind, that sings so loud a song!

O you that are so strong and cold,  
O blower, are you young or old?  
Are you a beast of field or tree,  
Or just a stronger child than me?  
    O wind, a-blowing all day long!  
    O wind, that sings so loud a song!

—ROBERT LOUIS STEVENSON.

By Permission of Rand, McNally & Co.

CHILDREN MEMORIZE:

#### SWEET AND LOW

Sweet and low, sweet and low,  
    Wind of the western sea,  
Low, low, breathe and blow,  
    Wind of the western sea!  
Over the rolling waters go  
Come from the dying moon and blow,  
    Blow him again to me;  
While my little one, while my pretty one sleeps.

Sleep and rest, sleep and rest,  
    Father will come to thee soon;  
Rest, rest, on mother's breast,  
    Father will come to thee soon;  
Father will come to his babe in the nest,  
Silver sails all out of the west  
    Under the silver moon;  
Sleep, my little one, sleep, my pretty one, sleep.

—TENNYSON.

## ORPHEUS, A MYTH OF THE SOUTH WIND

In the land of Thrace lived, years ago, one who was called Orpheus. He was the sweetest singer ever known. His voice was never loud, but low and sweet and soft.

When men heard this voice all anger ceased, and they thought only thoughts of peace.

Orpheus went into the woods one day and took nothing but his lyre with him.

No quiver of arrows was on his back nor hunting spear at his side.

He sang and sang till the birds flew down on the ground about him, and seemed to think that a creature with such a voice must certainly be another kind of bird.

A wildcat came slyly creeping between the trees, trying to catch the little feathered friends. Orpheus took his lyre and the wildcat became as tame as the birds. They all followed Orpheus farther into the forest.

Soon, from behind a rock, a tiger sprang to attack the wildcat. The birds and the wildcat called to Orpheus. When he saw the trouble he took his lyre again and, while he sang, the tiger came trembling and purring to his feet, and the birds, the wildcat, and the tiger followed Orpheus into the forest.

He sat down by a tree to rest and the honey bees came and showed him where their honey was hidden in the tree. He fed his friends and himself, and the tiger led the way to the river, where there was the purest water.

Trees bent low before him, and young trees tore themselves from the ground and followed in his train.

Foul waters parted, so that Orpheus and his band might pass through unharmed, for they knew no longer any evil thing.

Before they reached the river of pure water, to which the tiger was leading them, a lion, fierce with hunger, sprang madly at his old enemy.

Orpheus took his lyre and played so wonderfully, that even the pine trees sighed with sorrow, and the lion loosed his hold on the tiger, and his voice changed from a growl to a wail, and he, too, followed the sweet singer of Thrace. At the river, birds, wildcat, tiger, and lion drank together with Orpheus, with not one thought of harming each other.



"We are tired," said the birds. "Let us stay here by this river," and Orpheus agreed. The birds flew to the trees, while the others tried to rest on the huge rocks by the shore, but these were jagged and rough. They would give no rest to anyone.

When Orpheus began to play, the hardest rocks were stirred. They rolled over and over into the river, and in their places the softest beds of white sand were ready for them all. Orpheus rested, with the lion and the tiger for his night watchers, and the wildcat asleep in the tree with the birds.

In the morning, the lyre sounded again, and the strange company wandered away, happy to be near Orpheus. The three wild beasts had fed together on the river mussels and forgot that they had been life-long enemies.

Orpheus had said, before he entered the forest, that he was tired of men and their quarrels; that wild beasts were easier to tame than angry men; and so he had found it these two days in the forest.

He took his lyre and played and sang a sweet wild song of love and peace, and, overhead, the leaves and branches of the oaks danced and waved for joy of living. Not one growl, not one quarrel was heard even where the echoes of the music went, for even the rocks answered the voice of Orpheus, and everything was at peace.

Then came the sound of the hunting dogs. The lion raised his shaggy head, but put it down again. A green light came into the eyes of the tiger and of the wildcat. The dogs came nearer. Orpheus played on his lyre and the dogs came and lay down at his feet, but the hunters went home without their prey. That night Orpheus led them all back to the paths where he found them, and went home to his cave in Thrace.

For years, hunters told, over their camp fires, strange stories of a tiger and a lion who lived together in the deep forest, and of a wildcat with eyes like a pet fawn.

Sometimes, even in these days, it seems as if Orpheus were singing again.

When the wind strikes the trembling wires there comes sweet music. The pine trees sigh, and leaves and branches of the forest trees dance as in the days when Orpheus first went into the woods of Thrace.

When the South wind blows, sounds like the lyre of Orpheus come to us from these trembling leaves.

When the South wind comes, Earth's voices become low and sweet,  
and the birds sing soft melodies to greet its coming.

The old books tell us that Orpheus was but the South Wind.

—MARY CATHERINE JUDD.

(Rand, McNally & Co.) Adapted.

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## SPRING FLOWERS

Stedman says of Lowell: "It does me good to see a poet who knows a bird or flower as one friend knows another, yet loves it for itself alone."

Approach the spring flowers with the higher thought of their symbolism.

"They sleep in dust through the wintry hours,

They break forth in glory with the spring's warm showers."

Here is a sweet poem which will help the children to appreciate the loveliness of the anemone when they find it nodding to them in its home in the woods.

Nothing sweeter is to me, than the wind anemone,

Lifting up her fair, pink face, in some lonely, wildwood place.

Children in the April days, when you search the hillside ways,

Search the valleys through and through, for buttercups and violets blue.

Here and there you'll surely see, pretty wind anemone,

In her simple, pale green gown, and her dear eyes looking down.

Then with me I pray you say: sweetest flower I've found to-day,

Type of grace and purity, lovely wind anemone!

By MARY GRANT O'SHERIDAN.

Have several plants dug up carefully and taken home as a contribution to the wild-flower garden in the school-yard. If children cultivate flowers they will soon learn to appreciate their beauty.

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## ANEMONE

This plant has a slender stem and three compound leaves, forming a pretty vase for the one white flower tinged with pinkish purple. The anemone has no petals. Let children ex-

amine seeds and root-stock (rhizome). Discuss work of root, stem, leaf, and flower. Sketch plant. Repeat poem on "Flowers" by Mary Howitt.

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### THE BLOODROOT

Children find this frail flower in April in the damp woods.

Examine the rhizome or root-stock growing horizontally, filled with red, acrid juice. Leaf comes up from the ground clasping the flower-bud. The blade is rounded, margin lobed, and base deeply heart-shaped.

Flower loses its sepals as soon as it opens. The pure white petals open only in the sunshine. Sketch the plant and compare it with some flower previously studied.

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### THE BLUE VIOLET

I know blue modest violets,  
Gleaming with dew at morn—  
I know the place you came from,  
And the way that you were born!  
When God cuts holes in heaven,  
The holes the stars look through,  
He lets the scraps fall down to earth,  
The little scraps are you.

—PHOEBE CARY.

Request children to look for violets early in the spring, and see who will be first to bring one to school.

**Field Lesson.**—Home of the violet?

Why did the leaves come before the flowers?

The leaves, with the help of the sun, prepare food for the flowers and other parts of the plant.

Take home several plants and observe their growth in the school-yard. Describe root, leaf, and flower.

Children sketch and paint the violet.

**Hamilton Gibson says :**

"We cannot all be scientists or explorers, but we can at least learn to lend an answering intelligent welcome to those little faces that smile at us from among the grass and withered leaves, that crowd humbly about our feet, and are too often idly crushed beneath our heel. The darkest pathless forest is relieved of its gloom to him who can nod a greeting with every footstep; who knows the pale dicentra that nods to him in return; who can call by name the peeping lizard among the moss, the pale white pipe among the matted leaves, or even the covering mould among the deep debris."

—*From Highways and Byways.*

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### CHORUS OF THE FLOWERS

I am the honeysuckle with my drooping head,  
And early in the spring time I don my dress of red.  
I grow in quiet woodlands, beneath some budding tree;  
So when you take a ramble, just look at me.

I am the dandelion, yellow, as you see,  
And when the children see me they shout for glee.  
I grow by every wayside, and when I've had my day  
I spread my wings so silvery, and fly away.

When God made all the flowers, he gave each one a name;  
And when the others all had gone, a little blue one came,  
And said, in trembling whisper, "My name has been forgot,"  
Then the good Father called her Forget-me-not.

A fern the people call me, I'm always clothed in green;  
I live in every forest—You've seen me oft I ween.  
Sometimes I leave the shadow to grow beside the way;  
You'll see me as you pass some nice, fine day.

I am the gay nasturtium, I bloom in gardens fine;  
Among the grander flowers, my slender stalk I twine.  
Bright orange is my color, the eyes of all to please.  
I have a tube of honey for all the bees.

I am the little violet, in my purple dress;  
I hide myself so safely, that you'd never guess  
There was a flower so near you, nestling at your feet;  
And that is why I send you my fragrance sweet.

—LUCY WHEELLOCK

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## JACK-IN-THE-PULPIT

(INDIAN TURNIP.)

By the time Jack-in-the-Pulpit makes his appearance we realize the force of the following lines:

The year's at the spring  
And day's at the morn;  
Morning's at seven;  
The lark's on the wing;  
The snail's on the thorn;  
God's in his heaven—  
All's right with the world.

—ROBERT BROWNING.

In this lesson emphasize the symbolism of flowers and lead pupils to image Whittier's poem.

**Preparation.**—Informal talk with children about the work of the sun and the rain in waking up the flowers. Which flowers answered the call first? How many of the children have become acquainted with the little flower-preacher?

**Field Lesson.**—Visit Jack in his home, give him a cordial greeting and thank him for making his appearance so early. Find out about his home life, his friends, and his work.

Direct attention to the beauty of his surroundings; carpet green, decorated with many colors; ceiling blue, white, and gray—constantly changing.

Why called Jack-in-the-Pulpit?

After the children have become acquainted with the flower and discussed its environment they will enjoy the poem.

## JACK-IN-THE-PULPIT

Jack-in-the-pulpit preaches to-day  
Under the green trees just over the way.  
Squirrel and song-sparrow, high on their perch,  
Hear the sweet lily-bells, ringing to church.

Come, hear what his reverence, rises to say,  
In his low, painted pulpit, this calm Sabbath day.  
Fair is the canopy, over him seen,  
Penciled by Nature's hand, black, brown and green.

Green is his surplice, green are his bands,  
In his queer little pulpit, the little priest stands.  
In black and gold velvet, so gorgeous to see,  
Comes with his bass voice, the chorister bee.

Green fingers playing, unseen on wind-lyres—  
Low singing bird voices—these are his choirs.  
The violets are deacons—I know by the sign  
That the cups which they carry are purple with wine;

And the columbines bravely as sentinels stand  
On the lookout with all their red trumpets in hand.  
Meek-faced anemones, drooping and sad;  
Great yellow violets, smiling out glad;

Buttercups' faces, beaming and bright;  
Clovers, with bonnets—some red and some white;  
Daisies, their white fingers half clasped in prayer;  
Dandelions, proud of the gold in their hair;

Innocents,—children, guileless and frail,  
Meek little faces upturned and pale;  
Wildwood geraniums, all in their best,  
Languidly leaning, in purple gauze dressed;—

All are assembled this sweet Sabbath day,  
To hear what the priest in his pulpit will say.  
Look! white Indian pipes on the green mosses lie!  
Who has been smoking profanely so nigh?

Rebuked by the preacher, the mischief is stopped;  
But the sinners, in haste, have their little pipes dropped.  
Let the wind, with the fragrance of fern and black birch,  
Blow the smell of the smoking, clean out of the church.

So much for the preacher; the sermon comes next.  
Shall we tell how he preached it and what was his text?  
Alas! like too many grown-up folks who play  
At worship in churches, man builded to-day,

We heard not the preacher expound or discuss;  
But we looked at the people, and they looked at us.  
We saw all their dresses, their colors and shapes,  
The trim of their bonnets, the cut of their capes.

We heard the wind-organ, the bee and the bird,  
But of Jack-in-the-Pulpit we heard not a word.

—WHITTIER'S *Child Life*.

Examine the pulpit, the canopy, the decorations. Are all the canopies "penciled" alike? Do you see "sentinels" here? "lily bells?" How many of the flowers named in the poem can you find? Which is your favorite? Why? What message do you think Jack has for the flowers and trees in his neighborhood? They seem well pleased, even the great trees bow approvingly.

Do you hear the music? wind lyres? the bird choir?

Children tell what they think the birds say. "Cheer up! cheer up! Spring of the year. Quick! Quick!" etc.

Dig up two or three flowers in different stages of development and plant in a window box. Jack likes damp soil and a shady nook. After an informal talk about the plant as a whole, direct attention to the work of root, stem, leaves, and flower. The underground part of the plant is enlarged into

"Every flower to a bird has confided  
The joy of its blossoming birth—  
The wonders of its resurrection  
From its grave in the frozen earth.

"We arise and we praise Him together  
With a flutter of petals and wings,  
The anthems of spirits immortal  
Rings back from created things."

a solid bulb called a corm. It contains starchy matter and is acrid in taste. Let children picture the plant as a whole.

Our little declaimer is shaded by an arched roof and also by the large green leaves. Encourage the children to study the plants in their true home—damp soil in the woods. Observe the small flies that exchange pollen for nectar. Note the frill of fine hairs that point toward the honey cells. How will the fly get out of the flower?

The flowers that have seed cases will soon have berries.

Watch the plants and find the red berries after awhile.

**The Flower.**—The spadix bears the flowers. In some flowers the spadix contains pistils only, and some, stamens only. The showy envelope (spathe) serves as a “sounding board” for the little preacher. Sounding boards are often seen in churches over pulpits to increase the resonance of the speaker’s voice. Jack always has a crowd of listeners.

The starch in many species of this plant is used as food. It furnished the stiffening for the immense lawn ruffs worn in the days of Queen Elizabeth.

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## THE ROSE

**Aim.**—To develop a love for a flower that is interwoven with all poetry and art—the queen among flowers.

To learn about the plant as a whole, the relation and work of its parts and its history.

**Preparatory Work.**—Lead pupils to talk about the beauty of flowers. Read poems to give direction to their thoughts. Help pupils to interpret:

In May, direct children to observe the shrub, find and report where it grows, general appearance, environment, height of shrub, kind and arrangement of leaves, appearance of buds, etc. Two or three days before the

“Earth is crammed with heaven,  
And every bush alive with God,  
But only he who sees  
Puts off his shoes.”

—BROWNING.



field lesson a few questions may be asked which can be answered only by a study of the plant in its home.

**Field Lesson.**—Observe plant as a whole. Give each child something definite to find out for himself. Give a few general questions to all the children. Find out how many of this plant's neighbors the children know. Which is the most useful? Which is the most beautiful? Recall the lessons on apple blossoms. Tell children that the rose and the apple blossom are members of the same family. Let children discover resemblances and differences. Find a shrub well filled with buds and blossoms. By conversation lead pupils to discover the beauty of color, form and use. Observe visitors. Has the plant enemies? Dig up two or three rose bushes and take them to the school-room or school-yard for study. The parts of the plant should be considered from the standpoint of function.

**Root.**—Is a rose bush hard to pull? Examine root and review function.

**Stems.**—Uses, height, shape, size, color, compare prickles with the thorns of the thorn apple.

**Leaves.**—Uses of leaves, arrangement on stems, kind, leaflets venation, etc.

**Flowers.**—Number, position. Describe the flower, parts of corolla, calyx, stamens and pistils.

**Fruit.**—Examine the fleshy red fruit, generally called hip. Examine the thorns or prickles.

What is their use? Rabbits peel bark from trees and shrubs in the spring time. Would they be likely to injure shrubs with thorns?

**Expression.**—Children, sketch plant as a whole. Paint branch containing leaves, buds and blossoms. Children commit:

"The rose has one powerful virtue to boast,  
Above all the flowers of the field;  
When its leaves are all dead and its fine colors lost,  
Still how sweet a perfume it yields."

Compare the wild rose with garden varieties. Tell children that the rose was a great favorite with the Greeks and Romans. It was customary for warriors to wear wreaths of roses. Nero caused showers of roses to be sprinkled on his guests at banquets. This flower suggested silence and a rose hanging over a guest table was a hint that conversation was to be "sub rosa." In later years the rose was dedicated to the Madonna and in Dante's Paradise she is called the "Mystic Rose." The Attar of Roses, an oil of great fragrance, is distilled from this flower. Forty thousand flowers are required to make an ounce, which sells for one hundred dollars. About one hundred and twenty species of roses grow wild in the whole world, while the garden varieties are numbered by thousands.

Pupils picture roses related to the bush. Let children observe a beautiful rose and teacher read:

#### AND YOU SWEET ROSE

Ah! crimson rose,—deep fused with gold,  
Your perfumed heart rare secrets hold!  
Unfold your petals, flower most fair,  
And tell me what lies hidden there!  
Your rosy lips—what would they speak?  
What says the dew-drop on your cheek?  
Within your heart lurks there a tear,  
The while you smile upon me, dear?  
Smile on, smile on, while yet you may—  
Have no regrets for yesterday!  
Live for to-day, my crimson rose!  
To-morrow, ah! Your radiance goes  
Forth with the sands in Time's frail glass—  
And you, sweet rose, must fade—alas!

Not from my memory shall you die—  
Within my breast enshrined you'll lie  
Forever more. \* \* \*

—AGNES HELEN LOCKART.

A week ago the sparrow was divine;  
The bluebird shifting his light load of song  
From post to post along the cheerless fence,  
Was as a rhymers ere the poet came;  
But now, O rapture! sunshine winged and voiced,  
Pipe blown through by the warm wild breath of the West  
Shepherding his soft droves of fleecy cloud,  
Gladness of woods, skies, waters, all in one,  
The bobolink has come, and, like the soul  
Of the sweet season vocal in a bird,  
Gurgles in ecstasy we know not what  
Save June! Dear June! Now God be praised for June.

*From Under the Willows.*—LOWELL.

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## FERNS

Visit the woods with pupils in May or early June and see the growing ferns. A few tufts, root-stock and all, should be taken to the school-room.

The Osmund Fern is very common. Wordsworth says:

That tall fern,  
So stately of the queen Osmunda named  
Plant lovelier, in its own retired abode  
On Grasmere's beach, than Naiad by the side  
Of Grecian brook.

The root is of many fibers with branches numerous, short, and spreading.

The stem is subterranean, a thick dark colored rhizome living many years (perennial).

When starting from the ground in early spring each leaf or frond, as it is called, is rolled from the top inward and downward, gradually unfolding as it grows.

Observe the brown wool which serves to protect the leaves against changes of temperature.

The fern has no flowers. It is reproduced by means of spores which are borne on the leaflets.

Compare with Maiden Hair Fern and with flowering plants.

In what particulars do they agree? differ?

Plant ferns near school and watch development. Remember the kind of soil they like best.

Picture ferns.

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## THE GRASSES

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### SONG OF THE GRASS BLADES.

"Peeping, peeping, here and there,  
In lawns and meadows everywhere;  
Coming up to find the spring,  
And hear the robin redbreast sing,  
Creeping under children's feet,  
Glancing at the violets sweet,  
Growing into tiny bowers,  
For the dainty meadow's flowers:—  
We are small, but think a minute  
Of a world with no grass in it."

The grasses are by far the most useful of all plants. They are everywhere to be seen carpeting meadows, hills and valleys with their soft beautiful green. Our cereals—wheat, oats, rye, barley and Indian corn—are simply cultivated grasses.

**Field Lesson.**—Visit a grass plot. Let children make a collection of pretty grasses for the school-room table.

Count the number of stalks growing in a square foot of meadow.

What part of the stalk is the hardest and strongest? On what part of the stem are the nodes closest together? Break a stem. Have all the grasses hollow stems?

The jointed, hollow stem is called a culm. Can you find branching culms? Have grasses flowers? Are the flowers fragrant? bright colored? Are they visited by insects? Watch and decide. Examine the leaves. Compare shape and venation with leaves previously studied.

Dig up some of the sod, take home, wash soil out of it and examine roots.

Children, name different places where grasses are found growing.

"Here I come creeping, creeping everywhere;  
By the dusty roadside,  
On the sunny hillside,  
Close by the noisy brook,  
In every shady nook,  
I come creeping, creeping everywhere."

The grasses, by their many roots, hold the soil together and prevent it from being washed away—most grasses are perennials. Find the tiny stamens in the chaff-like scales? Find pistils. Most of the grasses are fertilized by the wind. They furnish food and shelter for cattle, horses, sheep, birds and insects.

**Timothy** is one of the very common varieties. The flowers grow on a long spike, cylindrical in shape. The root looks like a small bulb. Picture and compare with clover.

Timothy seed was brought to this country from Europe many years ago by a man named Timothy Herd.

**Sweet Vernal Grass.**—Examine root, culm, leaves and flowers. The internode is very long, the leaf blade and sheath are very short.

Note the adaptation of the flowers to wind-fertilization—the long stamens and stigmas—the beautifully balanced tremulous anthers. Compare Timothy with Sweet Vernal Grass.

## THE DANDELION

"There surely is a gold mine somewhere underneath the grass,  
For dandelions are popping out in every place you pass.  
But if you want to gather some you'd better not delay,  
For the gold will turn to silver soon and all will blow away."

—SELECTED.

The dandelion's golden discs may be found near the home and school from early spring until late in autumn and children admire this common flower as much as many older people dislike it.

**Preparatory Work.**—Give children definite questions to answer by studying the plant. Let them pull up a dandelion. Was it hard to pull? What change takes place after it is taken from the earth unless kept in water? Cover a growing plant in the yard and compare its appearance after a couple of weeks with one growing in the sun. Examine the flowers after dark. Children tell why they like the dandelion. They have curled the hollow stems, made chains of the blossoms, and by blowing away the seeds found out when "mother calls."

**Material.**—Two or three plants in different stages of development growing in window boxes. Children observe changes from day to day. A couple of whole plants in glass jars of water.

**Root.**—Direct attention to the strong central root and the number of branches extending in every direction. Compare root of a plant that has formed seed with one that has not. Why has one so much milky juice and the other so little? The plant that has ripe seed has a spongy root. Milky juice used in making seeds.

### Sum up Uses of Root

Holds the plant firmly in the earth.

Central thickened root stores up food for all parts of the plant.

The fine rootlets take up nourishment from the earth.

**Leaves.**—Lead children to discover that the leaves form a rosette around the buds and flowers. The leaf is oblong in shape and the margins are cut into large lobes.

Let children find dandelions growing among high weeds and compare with those growing in open places; the leaves are flat on the ground in open places, and extend upward to catch the sun's rays among the tall weeds.

Call attention to the large vein in the middle of the leaf to guide rain to the roots. Show by experiment that growing leaves give off watery vapor. Fit a piece of oilcloth or heavy paper under the leaves of a plant growing in the sunshine and cover with a glass jar; moisture collects on inner surface of jar. Recall experiment with morning-glory. Watery vapor passes through the breathing pores of the leaves.

### **Sum up the Work of Leaves**

They protect the buds and flowers. Direct water to the roots.

Breathe for the plant.

With the help of the sun they make food for the plant.

The seeds are very dainty, but the strong old trees will send a warm blanket of leaves, and later the snow will cover leaves and seeds until the warm sun and the spring rains awaken them from their long sleep. Read "November," by Alice Cary.

### **THE FLOWER**

"Bright little dandelion, downy yellow face  
Peeping up among the grass with such gentle grace,  
Minding not the April wind blowing rude and cold,  
Brave little dandelion with a heart of gold."

The heart of gold is a pretty center for the rosette.

Watch the dandelion's visitors. Children keep a record for a week of the different insects they find on the flower. The bees like the dandelion because the nectar is easily obtained

from the tubes of the florets. How do they pay for the nectar? When they visit a flower in search of food they carry a precious dust called pollen from one flower to another that needs it in order to develop the best seed. If pollen is not obtained from another flower the dandelion ovules manage to get it from the plant on which they grow. This process of self-pollination, in case cross-pollination (pollen from one flower to another of the same kind) is not secured, accounts for the great number of dandelions to be found. The stem takes the flower up to the sun when it is necessary, is hollow, and has a bitter taste.

Children, discover the habit of the flower in closing at night and upon the approach of rain to save the nectar, also the involucre closing upon the fading corolla while the seeds are ripening, and becoming convex to hold up the seeds so as to catch the wind when they are ready to fly. Children notice that after the flower withers, a white, downy mass appears, the silky hairs spread apart and a beautiful white sphere rivals the golden yellow flower. Count the number of seeds on a head. A light puff of wind will start them on their journey. Children blow seeds from the receptacle and see how they sail; try to imagine where the silk wings will take them.

O dandelion yellow as gold,

What do you do all day?

I just wait here in the tall green grass

Till the children come to play.

O dandelion yellow as gold,

What do you do all night?

I wait and wait till the cool dews fall

And my hair grows long and white.

And what do you do when your hair is white

And the children come to play?

They take me up in their dimpled hands

And blow my hair away.



## **Summary**

The flowers close in unfavorable weather.

The flowers close while seeds are ripening.

The bright color attracts the insects.

The flower stem (scape) grows upwards to give the seeds a chance to fly away. Determined to grow near our homes.

Change in shape of receptacle after the disappearance of the blossom.

The small, green bracts protect buds at night.

Teacher, draw plant as a whole, directed by pupils in order to lead them to observe carefully. Erase, and let children draw and paint the dandelion.

Sum up uses of root, stem, leaves, and flowers. Again impress interdependence in nature.

Tell children that the dandelion belongs to a very noted family and has a great many distinguished relatives. They grow in all parts of the world and comprise about one-tenth of all the flowering plants. (Aster, golden-rod, sunflower, thistle, chrysanthemum, dahlia, marigold, and many others.) Compare dandelion with chrysanthemum.

## **Uses of Dandelion**

Beautifies the earth at least half the year. Leaves used for food. Root used for medicine. Blossom has nectar for insects.

Tell story of the Pot of Gold.

I suppose you have heard of the pot of gold that was hidden at the end of the rainbow. No doubt there are people in the world who think it is there yet, but it is not, for a long, long time ago, somebody found it. Indeed, nobody knows how in the world it happened because a great many people have searched and searched for it and finally decided that the rain-

*"There's a dandy little fellow  
Who dresses all in yellow,  
In yellow with an overcoat of green.  
With his hair all crisp and curly  
In the spring time bright and early,  
A tripping o'er the meadows he is seen."*

**SELECTED.**

bow has no end. This is the story. A very, very selfish man found the gold and resolved to hide it where no one would ever find it. So one night he put the money in a sack and hurried away to the woods to hide it. There was a hole in the sack and the man did not know that one by one the gold pieces fell in the meadow. When he discovered that all his money was gone, you may be sure he hurried back to find it.

He stooped to pick up the bright gold coins, but was very much disappointed to find bright yellow flowers instead of money. How did it happen?

Indeed, I do not know. I only know that yellow flowers give joy to the children, and selfish people are never joyous or happy.—ADAPTED.

MEMORIZE:

### TO THE DANDELION

Dear common flower, that grow'st beside the way,  
Fringing the dusty road with harmless gold,  
First pledge of blithesome May,  
Which children pluck, and, full of pride, uphold,  
High-hearted buccaneers, o'erjoyed that they  
An Eldorado in the grass have found,  
Which not the rich earth's ample round  
May match in wealth, thou art more dear to me  
Than all the prouder Summer-blooms may be.

\* \* \* \*

My childhood's earliest thoughts are linked with thee,  
The sight of thee calls back the robin's song,  
Who from the dark old tree  
Beside the door, sang clearly all day long,  
And I, secure in childish piety,  
Listened as if I heard an angel sing  
With news from Heaven, which he did bring  
Fresh every day to my untainted ears,  
When birds and flowers and I were happy peers.

Thou art the type of those meek charities  
Which make up half the nobleness of life,  
Those cheap delights the wise  
Pluck from the dusty wayside of earth's strife;  
Words of frank cheer, glances of friendly eyes,  
Love's smallest coin, which yet to some may give  
The morsel that may keep alive  
A starving heart and teach it to behold  
Some glimpse of God where all before was cold.

Full of deep love thou art, yet not more full  
Than all thy common brethren of the ground,  
Wherein, were we not dull,  
Some words of highest wisdom might be found;  
Yet earnest faith from day to day may cull  
Some syllables, which, rightly joined, may make  
A spell to soothe life's bitterest ache,  
And ope Heaven's portals, which are near us still  
Yea, nearer ever than the gates of Ill.

—LOWELL.

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### LEGEND OF THE CHRYSANTHEMUMS, OR CHRIST FLOWERS.

It was Christmas Eve in the Black Forest. The whirling snow touched the tree tops; the starry flakes clung to the branches or fluttered down, pure as rose petals wafted about by the breath of angels. Soon the frozen earth was hid from view and a great white world waited, in solemn expectation, the coming of the Christ-Child. Silence lay upon the forest. The charcoal burners tended their smoldering fires and dreamed of home or, with simple faith, listened for the shepherd's message and the angels' song.

When the midnight hour was nigh, a sound broke the stillness, the wail of a child in distress.

"'Tis the cry from Bethlehem," said Johann reverently. "The Christ-Child is born."

"No child of the Black Forest would be about to-night?" asked Hans, uneasily. "It might not be one of our little children?" "Not so," said Michael; "content thee, Hans, thy little ones snug in their cot, dream of the angels, while thy good frau guards their sleep. It is as Johann says, 'the echo from Bethlehem.'"

Hans was silent, but presently stole away into the snow-wreathed depths of the forest. A voice in his heart was urging him on.

"May the star of Bethlehem guide me aright," he prayed. "If a child

be abroad this holy night, lead me, dear God, to Thy little one." Again the wail of distress smote upon his ear; a sob was the answer to his prayer; and stooping down, the charcoal burner lifted from the snow a babe scantily wrapped in swaddling clothes. It's feeble strength was almost spent, so placing it in his breast, Hans sped through the forest toward his home.

The hausmutter sat by her babes, her face, beautiful with mother-love, radiant in the glow of the Christmas lights burning on the humble tree, and so Hans found her.

"I have brought thee one more, Gretchen," he said as he placed the babe on her bosom. "Succor it for the Christ-Child's sake."

"Who was born to-night," answered the mother gently, and her love flowed out to the waif, warming it back to life.

The slumbering children stirred and wakened, and seeing the stranger, rose from their cots, and presently the hut rang with their rejoicing. The lights on the tree twinkled like stars. The children bore their guest toward it, loaded him with its choicest gifts, and played about him merrily, Hans and Gretchen looking on, a great content in their hearts. Suddenly a radiance, not of earth, illumined the humble abode; the waif was encircled by a glory that deepened and spread, till the charcoal burner's hut became as an ante-chamber of heaven. Hans and Gretchen fell on their knees in adoration. The Babe they had harbored was passing from their vision, floating upward as if borne by angels' wings. His tiny hands outspread in parting benediction. The children wept for the loss of their playmate.

"Hush thee, my darlings," whispered the mother. "Know you 'twas the dear Christ-Child, who came to us and hath returned to Heaven. To-morrow thy father shall show thee the spot where he found the Holy Babe."

When the morrow came Hans led the little ones into the forest and where had been a bed of snow, lo! flowers bloomed, great waxen blossoms with hearts of gold and petals like silken floss!

"The Christ flowers!" cried little Gretta, and kneeling before them, as at a shrine, the peasants solemnly recorded a vow to succor each Christmas day some poor child in honor of the Holy One, who had been their guest.

And so in the Black Forest, is still held this legend of "How the Chrysanthemums or Christ Flowers Came."—MARY BLANCHE O'SULLIVAN.—*Donahoe's Magazine*; by permission of the author.

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## THE APPLE TREE

"Doth thy heart stir within thee at the sight  
Of orchard blooms upon the mossy boughs?  
Doth their sweet household smile waft back the glow  
Of childhood's morn—the wondering fresh delight  
In earth's new coloring, then all strangely bright  
A joy of fairyland?"

**Aim.**—To make the child realize that beautiful stories can be read from trees as well as from books.

To impress and reinforce the out-of-door lessons by literature.

**Preparation.**—Lead pupils to talk about the gifts they like best. Tell them that our trees produce numberless gifts every year that we prize very highly. Let children name trees that have gifts for the birds and for the squirrels. Gifts for man. Ask them to tell why the apple tree is so great a favorite. They will be likely to suggest many reasons.

**Field Lesson.**—Visit the apple tree with pupils very early in the spring before there are any visible signs of growth. Get acquainted with the tree and its surroundings. Compare its height, its mode of branching and its general appearance with one of the evergreens studied during the winter. Ask questions that can be answered only by examining the tree.

Read "Talking in Their Sleep" to direct the children's thoughts.

"You think I am dead," the apple tree said,  
"Because I have never a leaf to show—because I stoop,  
And my branches droop, and the dull gray mosses over me grow!  
But I'm all alive in trunk and shoot; the buds of next May  
I fold away, but I pity the withered grass at my root."

"You think I am dead," the quick grass said,  
"Because I have parted with stem and blade? But under the ground  
I am safe and sound, with the snow's thick blanket over me laid,  
I'm all alive, and ready to shoot, should the spring of the year  
Come dancing here—but I pity the flower without branch or root."

"You think I am dead," a soft voice said,  
"Because not a branch or root I own! I have never died,  
But close I hide, in a plummy seed that the wind has sown,  
Patient I wait through the long winter hours; you will see me again—  
I shall laugh at you then, out of the eyes of a hundred flowers."

—EDITH THOMAS.

Request children to visit the tree daily, examine the branches and report changes in the appearance of the buds. Place a branch in a jar of water and let children watch the buds unfolding.

READ AND DISCUSS

"AN APRIL WELCOME"

Come up, April, through the valley,  
In your robes of beauty drest,  
Come and wake your flowery children  
From their wintry beds of rest;  
Come and overblow them softly  
With the sweet breath of the south;  
Drop upon them, warm and loving,  
Tenderest kisses of your mouth.  
Touch them with your rosy fingers,  
Wake them with your pleasant tread,  
Push away the leaf-brown covers,  
Over all their faces spread;  
Tell them how the sun is waiting  
Longer daily in the skies,  
Looking for the bright uplifting  
Of their softly-fringed eyes.

\* \* \* \* \*

Come up, April, through the valley,  
Where the fountain sleeps to-day,  
Let him, freed from icy fetters,  
Go rejoicing on his way;  
Through the flower-enameled meadows  
Let him run his laughing race,  
Making love to all the blossoms  
That o'erleant and kiss his face.

—PHOEBE CARY.

What flowers have opened their eyes? How many kinds of plants are to be found near the apple tree? What birds sing in its branches?

**Second Field Lesson.**—Where were the leaves and the buds when we made our first visit? What has caused such a differ-

ence in the appearance of the tree? Lead children to talk about the tree's helpers—soil, rain, air, and sunshine.

Impress the lessons of mutual dependence and mutual helpfulness. Let children tell what man does for a fruit tree. He plants the tree; he loosens the soil so that the rain can reach the roots; he trims and grafts the tree; he protects it by destroying its enemies, caterpillars, worms, etc. Children tell what they know about planting trees. Question parents and others.

Read and discuss and let older pupils commit the first three or four stanzas of "Come Let Us Plant the Apple Tree."

### COME LET US PLANT THE APPLE TREE

Cleave the tough greensward with the spade;  
Wide let its hollow bed be made;  
There gently lay the roots, and there  
Sift the dark mold with kindly care,  
And press it o'er them tenderly—  
As, round the sleeping infant's feet,  
We softly fold the cradle-sheet;  
So plant we the apple tree.

What plant we in this apple tree?  
Buds, which the breath of summer days  
Shall lengthen into leafy sprays;  
Boughs where the thrush with crimson breast,  
Shall haunt and sing and hide her nest;  
We plant upon the sunny lea,  
A shadow for the noontide hour,  
A shelter from the summer shower,  
When we plant the apple tree.

What plant we in this apple tree?  
Sweets for a hundred flowery springs  
To load the May wind's restless wings,  
When from the orchard row he pours  
Its fragrance through our open doors;  
A world of blossoms for the bee,

Flowers for the sick girl's silent room,  
For the glad infant sprigs of bloom,  
We plant with the apple tree.

What plant we in this apple tree?  
Fruits that shall swell in sunny June,  
And redden in the August noon,  
And drop, when gentle airs come by,  
That fan the blue September sky,

While children come, with cries of glee,  
And seek them where the fragrant grass  
Betrays their beds to those who pass,  
At the foot of the apple tree.

—WILLIAM CULLEN BRYANT.

What does the apple tree give man in return for all his care? Visit the tree again with pupils when it is in full bloom. The delicate colors, the fragrance, the hum of insects, and the songs of birds all combine to delight the senses. Help children to appreciate the beauty of the apple tree. By questioning lead pupils to describe calyx, corolla, stamens, and pistils. Note the number of flowers in a cluster, the arrangement on the stem, etc. Examine leaves, length of petiole, arrangement on branch, shape of leaf, etc. Draw and paint an apple branch.

**Discuss the Work of the Tree.**—The root takes food from the soil; the trunk and branches carry food from the root and leaves to the flowers; the leaves take carbon dioxide from the air, and out of this gas and water make starch, set free oxygen, and give off moisture.

### THE FLOWER

There's a wedding in the orchard, dear,  
I know it by the flowers;  
They're wreathed on every bough and branch  
Or falling down in showers.

—MARY MAPES DODGE.

The flower beautifies the earth and makes seed. The apple tree sends forth a continuous murmur after it blossoms. Let



children watch the bees at work and get acquainted with their ways. We are told that a single swarm has been known to gain twenty pounds in weight while the tree is in bloom. Do the bees help the apple tree? Encourage children to watch the beautiful corollas blowing away. Examine a branch frequently and note the growth of the apples.

Recall the appearance of the tree in early spring. Review the influence of physical environment,—man's work, the tree's work. Lead children from nature to the Author of nature. The Creator controls and directs all. Whittier's poem will help to impress this thought.

O, Painter, of the fruit and flowers,  
We own Thy wise design,  
Whereby these human hands of ours  
May share the work of Thine!

Apart from Thee we plant in vain  
The root and sow the seed;  
Thy early and Thy later rain,  
Thy sun and dew we need.

And North and South and East and West  
The pride of every zone,  
The fairest, rarest, and the best  
May all be made our own.

In earliest shrines the young world sought  
In hill-groves and in bowers,  
The fittest offerings thither brought  
Were Thy own fruits and flowers.

And still with reverent hands we cull  
Thy gifts each year renewed;  
The good is always beautiful  
The beautiful is good.

—WHITTIER.

## Sum Up Uses of the Apple Tree

It beautifies the earth. It furnishes nectar for the bees.

Birds build their nests among its branches. The fruit is valuable.

Cider and vinegar are made from the apples.

Study the apple in the fall after having watched its growth from the beginning. Cut the apple across through the center.

How many parts or cells in the seed box?

Count the seeds. Tell the number and the arrangement in each cell. How are the seeds protected? By the skin; by the pulp which is the fleshy, ripened cup or calyx; and by the core, which is the wall of the seed-box. How can you help to awaken the life in the apple seed?

How do you know when the seeds are ripe?

In what way does the brilliant color help the seeds? Read "Apple-Seed John" for children.

### APPLE-SEED JOHN

Poor Johnny was bended well-nigh double  
With years of care, and toil, and trouble;  
But his large old heart still felt the need  
Of doing for others some kindly deed.

"But what can I do?" old Johnny said;  
"I, who work so hard for daily bread?  
It takes heaps of money to do much good;  
I am far too poor to do as I would."

The old man sat thinking deeply awhile,  
Then over his features gleamed a smile;  
And he clapped his hands with childish glee,  
And said to himself, "There's a way for me!"

He worked and he worked with might and main,  
But no one knew the plan in his brain.  
He took the ripe apples in pay for chores,  
And carefully cut from them all the cores.

With a bag full of cores he wandered away,  
And no man saw him for many a day.  
With knapsack over his shoulder slung,  
He marched along and whistled or sung.

With pointed cane, deep holes he would bore,  
And in every hole he placed a core;  
Then covered them well and left them there,  
In keeping of sunshine, rain, and air.

Whenever he'd used the whole of his store,  
He went into cities and worked for more;  
Then he marched back to the wilds again,  
And planted seed on hillside and plain.

Weary travelers, journeying West,  
In the shade of his trees find a pleasant rest;  
And they often start with glad surprise,  
At the rosy fruit that round them lies.

And if they inquire whence came such trees,  
Where not a branch once swayed in the breeze,  
The answer still comes, as they travel on,  
"These trees were planted by 'Apple-Seed John.'"

—LYDIA MARIA CHILD.

### TREE PLANTING

What does he plant who plants a tree?  
He plants the friend of earth and sky;  
He plants the flag of breezes free;  
The shaft of beauty hovering high;  
He plants a home to heaven a-nigh,  
For song and mother—croon of bird  
In hushed and happy twilight heard,—  
The treble of heaven's harmony,—  
These things he plants who plants a tree.

What does he plant who plants a tree?  
He plants cool shade and tender rain,  
And seed and bud of days to be,  
And years that fade and flush again;

He plants the glory of the plain;  
He plants the forest heritage;  
The harvest of a coming age;  
The joys that unborn eyes shall see,—  
These things he plants who plants a tree.

What does he plant who plants a tree?

He plants in sap and leaf and wood  
In love of home and loyalty,  
And forecast thought of civic good,—

His blessings on the neighborhood  
Who, in the hollow of His hand  
Holds all the growth of all the land,  
A nation's growth from sea to sea  
Stirs in his heart who plants a tree.

—COOLEY'S *Language Book*.

## THE APPLE

The apple is the most common and yet the most varied and beautiful of fruits. A dish of them is as becoming to the center-table in winter as was the vase of flowers in the summer,—a bouquet of Spitzenburgs and Greenings and Northern Spies. A rose when it blooms, the apple is a rose when it ripens. It pleases every sense to which it can be addressed, the touch, the smell, the sight, the taste; and when it falls, in the still October days, it pleases the ear. It is a call to a banquet, it is a signal that the feast is ready. The bough would fain hold it, but it can now assert its independence; it can now live a life of its own.

Daily the stem relaxes its hold, till finally it lets go completely and down comes the painted sphere with a mellow thump to the earth, toward which it has been nodding so long. It bounds away to seek its bed, to hide under a leaf, or in a tuft of grass. It will now take time to meditate and ripen! What delicious thoughts it has there nestled with its fellows under the fence, turning acid into sugar, and sugar into vinegar.

How pleasing to the touch! I love to stroke its polished rondure with my hand, to carry it in my pocket on my tramp over the winter hills, or through the early spring woods. You are company, you red-cheeked spitz, or you salmon-fleshed greening! I toy with you; press your face to mine, toss you in the air, roll you on the ground, see you

shine out where you lie amid the moss and dry leaves and sticks. You are so alive! You glow like a ruddy flower! You look so animated I almost expect to see you move! I postpone the eating of you, you are so beautiful! How compact; how exquisitely tinted! Stained by the sun and varnished against the rains. An independent vegetable existence, alive and vascular as my own flesh; capable of being wounded, bleeding, wasting away, or almost repairing damages! \* \* \* \*

An apple orchard is sure to bear you several crops beside the apple. There is the crop of sweet and tender reminiscences, dating from childhood and spanning the seasons from May to October, and making the orchard a sort of outlying part of the household. You have played there as a child, mused there as a youth or lover, strolled there as a thoughtful sad-eyed man. Your father, perhaps, planted the trees, or reared them from the seed and you yourself have pruned and grafted them, and worked among them, till every separate tree has a peculiar history and meaning in your mind. Then there is the never-failing crop of birds,—robins, goldfinches, king-birds, cedar-birds, hair-birds, orioles, starlings,—all nesting and breeding in its branches and fitly described by Wilson Flagg as "Birds of the Garden and Orchard."

—*From Winter Sunshine.*—JOHN BURROUGHS.

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## HONEY BEES

**Purpose of the Lesson.**—To emphasize interdependence by directing attention to the relation of flowers and bees.

To become better acquainted with the life and habits of one of the most intelligent of insects.

**Material Useful for Illustrating the Lesson.**—Bees, honeycomb, wax, and flowers containing pollen.

**Preparatory Work.**—Talk with pupils about flowers, their beauty and use. Let children tell about the home, appearance, and habits of their favorite flowers. What insects visit them? Why are the flowers and the bees such good friends? Request pupils to watch a bee for five or ten minutes each day for a week or so, and report observations daily. How many different flowers did it visit? Were the flowers all alike or did it

go from one flower to another? Children find nectar in flowers. How many have visited a hive? Tell pupils that the bees seem grateful for the apple blossoms, clover, linden, buckwheat, and many other trees and flowers, but they never seem to appreciate man's kindness in giving them a hive.

After interest has been awakened by out-door observation a few bees may be secured almost any sunny day, put in a glass jar, and covered with netting. A lump of moistened sugar or a little honey and some fresh flowers will satisfy their hunger while the children are getting better acquainted with them. Continue study out-of-doors.

**Habits and Structure.**—Direct attention to the bees in the window jar and bring out as many of the following facts by questioning, as possible:

The bee's body is divided into three parts,—head, thorax, and abdomen.

The long tongue is used in getting nectar from the flowers.

**Wings.**—Four transparent wings. The fore large wing and the hind small one are hooked together and spread out when flying, but when walking are folded so that the smaller wing slips under the larger one. Advantage of this arrangement?

**Eyes.**—Two large compound eyes on the side of the head and three single eyes on the top of the head.

**Antennae.**—By means of the antennae or feelers the bee hears, smells, discovers the nature of objects and communicates with other bees.

The bee has six legs attached to the thorax. The hind legs of the workers are provided with pollen baskets.

Examine a piece of honeycomb and see the advantage of the six-sided cells,—no waste.

Let children find answers to the following questions: How is wax made? The workers eat all the honey they can, hook themselves together in long lines that hang in festoons from

the top of the hive until tiny scales of wax appear between the rings of the abdomen of each bee. In about twenty-four hours the honey is changed to wax. It takes about twenty-five pounds of honey to make one pound of wax.

It is estimated that a colony of forty thousand workers can make about four thousand cells in twenty-four hours.

How far do they travel for nectar? As a rule, only a short distance, but bees have been known to fly many miles.

Prof. Hodges tells us that a swarm can make a thousand pounds of honey in a season.

What trees yield honey? Basswood, maple, willow, apple, etc.

What flowers? White clover, buckwheat, raspberry, corn, wheat, dandelion, etc. The red clover gives its honey to the bumble-bee and the Italian bee.

What time do bees begin their day's work? Before sunrise.

Let older pupils discover the importance of their work in carrying pollen from one flower to another of the same kind (cross-pollination).

Cover a cluster of buds with netting before the flowers open,—strawberry, apple, plum, cherry, etc. Compare strawberries on covered cluster with berries on exposed stems. In autumn compare apples and plums on covered and uncovered branches. The superior quality and quantity of the fruit on uncovered branches is due to cross-pollination.

The bee family, swarming, and the life story of bees are topics of great interest.

In case pupils have no opportunity to watch a swarm of bees at work, it may be advisable to conclude the study in the lower grades with the pollination of flowers.

Read to children part of "Birds and Bees" and "Locusts and Wild Honey" by John Burroughs. Read "King Solomon and the Bees" told in verse by J. G. Saxe.

## KING SOLOMON AND THE BEES

Many, many years ago there lived a very wise king named Solomon. He knew all the flowers of the field and the trees of the forest; the secrets of birds, bees, ants and butterflies, where they lived and how they obtained their food. When people had disputes to settle they appealed to him, believing that he would tell them what was right.

The Queen of Sheba heard of Solomon's fame and resolved to visit him and make a test of his wisdom. She required the most skillful workmen in her kingdom to make a bouquet of artificial flowers, and so perfect were they that it was almost impossible for the keenest observer to distinguish them from the flowers that grew in the garden. The queen brought the artificial flowers and a bunch of natural flowers to the king and asked him to tell her which were the real flowers. Solomon was puzzled and realized that it was not easy to answer this question. He caught sight of a bee outside the window and requested a servant to open the window and admit this welcome visitor. The bee at once made its way to the heart of the real flowers. Then the king said: "The answer to your question is plain, O Queen; the strong and wise may learn from the smallest creature if he will but watch for its teaching."

The queen said: "I have traveled far to learn the secret of your wisdom, O King, and my journey is not in vain. I am convinced that you are truly wise."

—ADAPTED.

### BEES

There is no creature, with which man has surrounded himself that seems so much like a product of civilization, so much like the result of development on special lines and in special fields, as the honey-bee. Indeed, a colony of bees, with their neatness and love of order, their division of labor, their public-spiritedness, their thrift, their complex economics, and their inordinate love of gain, seems as far removed from a condition of rude nature as does a walled city or a cathedral town. Our native bee, on the other hand, "the burly, dozing humble bee," affects one more like the rude, untutored savage. He has learned nothing from experience. He lives from hand to mouth. He luxuriates in time of plenty, and he starves in times of scarcity. He lives in a rude nest, or in a hole in the ground, and in small communities; he builds a few deep cells or racks in which he stores a little honey and



bee-bread for his young, but as a worker in wax he is of the most primitive and awkward. The Indian regarded the honey-bee as an ill-omen. She was the white man's fly. In fact she was the epitome of the white man himself. She has the white man's craftiness, his industry, his architectural skill, his neatness and love of system, his foresight, and, above all, his eager, miserly habits. The honey-bee's great ambition is to get rich, to lay up great stores, to possess the sweet of every flower that blooms. She is more than provident. Enough will not satisfy her; she must have all she can get by hook or crook. She comes from the oldest country, Asia, and thrives best in the most fertile and long settled lands.

—*From An Idyl of the Honey Bee.*—JOHN BURROUGHS.

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## RABBITS

The domesticated rabbit is very common; it is a great favorite with children, and an excellent type-animal for the study of the "gnawers" or rodents.

By a little effort, one or two rabbits can be obtained and their life and habits observed in the school-room or school-yard.

The study will be of comparatively little value, without the living rabbits.

**Aim.**—To awaken a sympathetic interest in animal life.

To lead children to observe the habits and structure of the rabbit, and to discover the adaptation of structure to life and habits.

### Material

One or two rabbits in a wire cage.

A box or large tray of sand in which the rabbits can dig.  
Pictures of rabbits.

**Preparatory Work.**—Find out how many of the pupils have pet rabbits. Let children tell some of the interesting things they have discovered while caring for their pets. What does the rabbit eat? Can he hear well? How does he drink?

What can you tell about his disposition? Do you think the rabbit is pretty? Why?

### Observation of Habits

**Playing.**—Rabbits are very active and enjoy frolicking about when they have plenty of room. Children, watch them at play and describe their actions.

Compare with cat.

**Washing.**—Watch the rabbit brushing his fur with his foot and then sponging it with his tongue. Tell how he washes his face. How does he hold down his ears? How does the cat wash herself?

**Eating.**—Give the rabbit some cabbage, and notice how he bites it off. He moves his lower jaw up and down, sideways, and from front to back. Examine his chisel-shaped, sharp, front teeth.

**Burrowing.**—Let children tell how the rabbit digs with his fore feet, and pushes the earth back with his hind feet. Give the rabbit a chance to burrow in the box of sand. Tell the pupils about the hares, often called "wild rabbits," that burrow under the snow in winter.

Children read about Hiawatha's rabbits.

Of all beasts he learned their language;  
Learned their names and all their secrets;  
How the beavers built their lodges;

\* \* \*

Why the rabbit was so timid;  
Talked with them where'er he met them  
Called them "Hiawatha's Brothers."

### Positions

Notice the rabbit's position when resting, sleeping, and sitting.

**When resting** he draws his head close up to his body, turns his ears backward, partly closes his eyes, and draws his feet under him. Looks like a ball of white fur.

**When sleeping** he sometimes stretches his body out full

length, rests his head on his fore paws, and turns his ears back close to his body.

**When sitting** he doubles his hind legs under him, straightens out his fore legs, and raises his ears; or he rests his body on the hind legs, and uses his fore legs for hands.

Have you seen rabbits listening? Describe position.

Have you seen them huddle close together?

Picture rabbits in three or four different positions.

**Movements.**—Study the rabbit's movements in the cage. When he walks he generally brings his two hind feet together very quickly. Open the cage and let Bunny show how well he can hop. Hopping and jumping are his usual means of locomotion. When he is frightened he will show how well he can jump.

Can you describe the position of his feet when he springs forward a yard or more at a bound? Sprinkle sand on the floor and examine the rabbit's tracks.

Read and discuss Hamilton Gibson's "How Bunny Writes His Autograph" (Sharp Eyes).

Which legs are the longer? the stronger?

Does the rabbit make much noise when he moves from place to place? Why not?

Examine the feet and find out how they are adapted to prevent noise. Insist upon personal observation.

The long, spreading, flexible foot with pad near end is covered with brush-like hairs. Use of pad or cushion? Use of brush-like hairs?

The hind legs are longer and stronger than the fore legs. Used mainly for hopping or jumping. The fore legs are used mainly for grasping things.

**Body as a Whole.**—Measure length of body when the rabbit is stretched out.

**Shape.**—Cylindrical. Head somewhat oval in shape; about

one-third as long as the trunk; neck very short. Notice the position and attachment of legs of rabbit. Fine, soft, furry covering, variable in color. Use: To beautify and to protect from cold.

**Ears.**—The large, delicate, more or less transparent ears are situated on top of head. Note shape of base. Note freedom of movement.

**Eyes.**—Compare the eye of the rabbit with the eye of the cat.

Large “bulging” eye on side of head, usually pinkish, has three eyelids. The rabbit can turn his eyeball and see behind him with a slight movement of the head.

**Whiskers.**—Notice position with reference to mouth and ears.

**Nose.**—Observe size and openings, also movements when cabbage or other favorite vegetable is near.

**Mouth.**—Upper lip cleft up to the nose. Is this an advantage?

**Teeth.**—Examine the two long, sharp, incisor teeth in the front of each jaw. Teacher, tell pupils about the flat, grooved, grinding teeth, and the small teeth hidden by the incisors in the upper jaw.

How does the rabbit keep his incisor teeth sharp enough to eat bark, twigs, and vegetables? The teeth grow out from the jaw as fast as they wear away. How does the rabbit keep his teeth worn down? Do they ever grow out faster than they wear away? Yes, sometimes Bunny’s teeth grow so long that he cannot eat. What will he do then? Recall what children learned about the squirrel’s teeth last fall.

Compare teeth of rabbit with teeth of squirrel.

**Disposition.**—Are rabbits gentle or rough, when they play together? Why do you think so? Are they easily frightened? Are they timid? Trustful? Give reason for your answer.

When eating together, how do they act? Are the two rabbits we have been studying alike in disposition?

**Food.**—Rabbits like clover, oats, meal, carrots, cabbage, lettuce, turnips, parsnips, etc. They often kill young trees by gnawing the bark.

**Enemies.**—The rabbit has a great many enemies: hawks, owls, weasels, foxes, hedgehogs, cats, and man.

Read John Burroughs' "Life of Fear in Riverby."

**Home Life.**—The true home of the wild rabbit is not in the school-room.

Teacher, tell children about the free, happy life of the rabbit in the woods.

Compare home and life with the home and life of the squirrel and the cat.

Rabbits frequently burrow in the hillside, and many burrows often communicate, forming what is called a "warren" in which great numbers may live together.

Describe zigzag arrangement of burrows. Why? Enemies cannot enter without great effort.

**Care of the Young.**—Tell children about the mother making a special home for the young,—collecting leaves and pulling hair from her own body to make a nice bed for the little rabbits, and remaining in the burrow a couple of days at a time without food, carefully covering the opening to the burrow when she finds it necessary to go out in search of food.

Tell story of "Battle Bunny" by Bret Harte. Europe, Asia, and Africa, the original home of the wild rabbit.

Why is this little animal so well liked as a pet?

Let children recall desirable characteristics, its gentleness, its kindness, its cleanliness, the ease with which it can be cared for, etc.

**Summary.**—Adaptation of structure to habits. The ears: freedom of movement, size, form, etc. The eyes: how adapted

to needs. The mouth and teeth: how adapted for gnawing? By shape, size, and strength of teeth, free movement of lower jaw, cleft upper lip.

The legs and feet: how adapted for locomotion?

The two hind legs longer and stronger than the two fore legs, the cushions, brush-like hairs and strong nails on the feet enable the rabbit to move noiselessly, brush his fur, and dig or burrow in the earth.

THE WILD RABBITS  
They live in burrows with winding ways,  
And there they shelter on rainy days.  
The mother rabbits make cosy nests,  
With hairy linings from their breasts.  
—SELECTED.

If the study of adaptation is not based on careful observation the work will be of little value.

How is the rabbit distinguished from the hare?

### THE HARE AND THE TORTOISE

A Hare one day ridiculed the slow pace of the Tortoise, and boasted of his own speed in running.

The Tortoise said, "Let us try a race. I will run with you five miles, and our friend the Fox may act as judge."

"All right," said the Hare, and away they went together. The Tortoise jogged along with a slow and steady pace to the end of the journey.

The Hare first outran the Tortoise, then fell behind and began to nibble at the grass and to play hide and seek with other hares. Finally he became tired with play and lay down for a nap, saying, "If the Tortoise should get ahead of me I could catch up with her and pass her without the least trouble." The Hare woke up but the Tortoise was not in sight; and running as fast as he could he found her at her goal fast asleep, while the Fox stood waiting to tell the Hare he had lost the race.

—FROM *Aesop's Fables*.

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### FISHES

Fishes are quite as interesting as their neighbors that live upon the land.

The following outline is only suggestive, but it is intended

to indicate some of the things that the children may learn about the fish.

Goldfish or minnows in glass jars.

Children observe movements and habits in living fish. How adapted to live in water? Examine the scales. Which way do they point? Why? Of what use are the scales to the fish? How does the fish breathe? Does it open its mouth? Has it eyelids? Where are the gills? How is the tail used? What does the fish eat? Has it teeth? Describe your favorite fish.

Count the fins. Where situated? structure? use of fins? Describe the gills.

**Shape of Body.**—A fish is shaped as a wedge at both ends. This is the typical form.

Is this the shape that can be moved through the water with the least amount of force?

Do you suppose boats are patterned after fishes?

**The Covering of Fishes.**—Direct attention to the arrangement of the scales. The front edges are embedded and held firmly in folds of the skin. The scales form a protecting skeleton and admit of great freedom of motion. Are all fishes provided with scales?

Note the slimy covering.

**The Fins and Tail.**—Children, watch the fish at rest—the fish swimming.

Teacher, make a blackboard drawing and show fins, gills, etc.

The fins vary in number and position, but most fishes have five kinds.

The pectoral fins are behind the head, one on each side of the body.

The ventral fins are below and still further back. In some fishes these are placed as far back as the tail, in others as far forward as the throat.



THE SHEPHERDESS—By *Henri Lerolle*.



The dorsal fin is on the back. Some fishes have two dorsal fins. The anal fin is on the under side near the tail.

Last is the tail or caudal fin.

The fins are folds of the skin strengthened by bony spikes. With the exception of the caudal fin, the chief use of the fins is for balancing.

The tail-fin is the important propeller,—the oar.

Besides the tail-fin the other two vertical fins—the anal and dorsal—may aid the fish in swimming.

**How does the Fish Breathe?**—Direct attention to the gill cover on the side of the head. The gills are so arranged as to bring the cold red blood of the fish in contact with the air which is in the water. The water flows in at the mouth, over the gills and out under the gill cover. The gills serve the purpose of lungs. Does the fish hear?

It is claimed that gold fishes have been trained to respond to the ringing of a bell at their meal time. Some fishes are provided with teeth. Is the minnow? the gold fish?

Compare the minnow with the cat-fish. Find out about the habits of the flying-fish, cuttle-fish, stickleback, and other interesting fishes.

Tell the children of the salmon fisheries, the fishing off the banks of Newfoundland, and the migration of fishes.

Describe the world renowned aquarium in Naples.

The teacher must, from general suggestions, make detailed outlines to suit her school if she hopes to succeed with the fish, or other nature lessons.

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## THE SHEEP AND THE COW

As the facts concerning this lesson are well known, only a few topics are suggested which the teacher should expand.

The sheep and the cow eat the same kind of food—grasses,

grains, etc.—are cud-chewers, have no front teeth in upper jaws, have four stomachs, have divided hoofs.

### Character

The sheep is gentle, patient, timid, social.

The cow is social, shows strong attachment for her young.

The cud-chewing animals furnish a very important part of our food and clothing.

Let children make a list of the things that are given by the sheep. By the cow.

Which is the most useful animal?

Lead the children to get as much of the information as possible from their own observation.

Procure good pictures of country life, "The Return of the Flock," "The Shepherdess," "The Sheep Pasture."

SLEEP, BABY, SLEEP!

Sleep, baby, sleep!

Thy father watches his sheep;

Thy mother is shaking the dreamland tree,

And down comes a little dream on thee.

Sleep, baby, sleep!

Sleep, baby, sleep!

The large stars are the sheep;

The little stars are the lambs, I guess;

And the gentle moon is the shepherdess.

Sleep, baby, sleep!

Sleep, baby, sleep!

Our Saviour loves His sheep;

He is the Lamb of God on high,

Who for our sakes came down to die.

Sleep, baby, sleep!

—E. PRENTISS (*from the German.*)