



Kindergarten

Talks and Tales

... BY ...

Elizabeth Harrison

Science Lessons

SCIENCE LESSONS.

BY

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OF DANTE," ETC., ETC.



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SCIENCE LESSONS.

ZOÖLOGY, GEOLOGY, BOTANY.

Four great divisions of Zoölogy, A, B, C and D.

(*a.*) Animals with back bones (Vertebrates).

(*b.*) Animals with three divisions and no bones (Articulates).

(*c* and *d.*) Animals with hard plates forming one case (Mollusks and Radiates).

DIVISION A—VERTEBRATES.

I.

Under division A, Vertebrates, comes the child's body. For the first six lessons take the parts of the body.

1. With the children study the shape of the parts of the body.

2. Study the *natural covering* of the body.

3. Study the *use* of the parts of the body.

4. Study the *care* of the parts of the body.

5. Study the *kind of a home* the child has.

6. Study the *kind of food* used by the child.

II.

CAT'S BODY.

For the following six lessons take the parts of the cat's body.

1. With the children study the *shape* of the parts of the body.

2. Study the *natural covering* of the parts of the body.

3. Study the *use* of the parts of the body.

4. Study the *care* of the parts of the body.

5. Study the *kind of home* a cat has.

6. Study the *kind of food* used by the cat.

Then in each detail compare the child's

body with that of the cat—how they are alike and how they differ.

III.

DOG'S BODY.

Study the dog in the same manner with the children for six or more lessons, and then find out how it differs from the cat and the child.

IV.

TURTLE.

Study the turtle's body with the children.

1. Study the shape of each part of the turtle's body.

2. Study the *natural covering* of each part of the turtle's body.

3. Study the *use* of the parts of the turtle's body.

4. Study the *care* of the parts of the turtle's body.

5. Study the *kind of a home* the turtle has.

6. Study the *kind of food* used by the turtle.

Then in each detail compare with the cat and the dog—how they are alike and how they differ.

V.

I would suggest that any other Vertebrates be found which can be easily obtained and the study carried on in the same way.

DIVISION B—ARTICULATES.

Under division B comes the craw-fish.

I.

For the first six lessons take the parts of the body.

1. With the children study the shape of the parts of the body of the craw-fish.

2. Study the *natural covering* of the parts of the body of the craw-fish.

3. Study the *use* of the parts of the craw-fish.

4. Study the *care* of the parts of the body of the craw-fish.

5. Study the *kind of a home* the craw-fish has.

6. Study the *kind of food* used by the craw-fish.

II.

LOBSTER.

Study the lobster for six or more lessons in the same manner as the craw-fish. Then, in each detail compare the two—how they are alike and how they differ.

DIVISION C—MOLLUSKS.

CLAMS.

Find ten parts of the clam.

Study it in the same manner as the craw-fish, the lobster and the turtle, and compare it with each—how they are alike and how they differ.

DIVISION D—RADIATES.

I.

Under division C comes the sea urchin. For the first six lessons take the parts of the body.

1. With the children study the *shape* of the parts of the body of the sea urchin.
2. Study the *natural covering* of the parts of the body of the sea urchin.
3. Study the *use* of the parts of the body of the sea urchin.
4. Study the *care* of the parts of the body of the sea urchin.
5. Study the *kind of a home* the sea urchin has.
6. Study the *kind of food* used by the sea urchin.

II.

STAR FISH.

For six or more lessons take the parts of the body of the star fish.

1. With the children study the *shape* of the parts of the body of the star fish.
2. Study the *natural covering* of the parts of the body of the star fish.
3. Study the *use* of the parts of the body of the star fish.

4. Study the *care* of the parts of the body of the star fish.

5. Study the *kind of a home* the star fish has.

6. Study the *kind of food* used by the star fish.

Then in each detail compare with the sea urchin—how they are alike and how they differ. (See foot note.)

III.

CORAL.

Study the coral in the same way as the sea urchin and the star fish, and in each detail compare them—how they are alike and how they differ.

Cuttle fish, also, will come under this same division.

Note.—Show the relation between the sea urchin and the star fish by cutting an orange into five pieces and spreading it.

GEOLOGY.

I.

Connect with Zoölogy by beginning with the shell rock.

Connect also with the clam.

Connect shell rock with the clam, coral, etc.

Have the children examine them and tell what they can taste, touch, hear or see.

Test shell with an acid.

II.

Next take limestone and have the children connect it with shell rock by pounding it to a powder, wetting it and letting it dry, thus leaving the child to realize that limestone is shell rock powdered.

III.

Have specimens of limestone (which are easily obtained) in which both limestone and limestone crystals are to be seen.

Study the formation of crystals by having little children crystallize alum, sugar and salt. (See note at foot of page.)

IV.

Have the children examine quartz crystals and other forms of crystallization.

(“Ethics of the Dust” may be read at this time by the teacher.)

V.

SAND.

With the children examine coarse sand with the magnifying glass, and find parts of crystals and other rocks.

SANDSTONE.

Lead the children to discover for themselves that sandstone is made of sand.

Note.—Beautiful crystals can be formed by dissolving five cents' worth of alum in water. Place this solution in a glass jar, in which hangs a woolen string, and put all in a quiet place.

VI.

Connect shale with sandstone by pounding the shale, wetting it and letting it dry so that the children may see that shale is hardened clay.

A piece of pipe-stone or common slate will do as well.

VII.

Connect coal with plant life by showing them moss, peat and muck.

BOTANY.

Begin with clay and connect with shale.

Show the children some loam or vegetable mould from the woods. Explain that this is made of moist decayed leaves.

Mix the clay with loam and sand ready for the planting of seeds.

The vegetable world is divided into *three* classes.

Have ready three boxes for these grand divisions.

1st Division—Plants with one seed leaf (Endogens).

2d Division—Plants with two or more seed leaves (Exogens).

3d Division—Plants with no seeds (Cryptograms).

FIRST BOX.

In this box plant different species of one seed leaf or Endogens, viz: Lilies, ivies, spiderwort, dwarf palms, canna, wheat, corn, oats, barley and grass, daffodil, onion, rushes.

SECOND BOX.

In this plant different kinds of Exogens: Peas, beans, roses, foxgloves, primroses, asters, mustard, buttercups.

THIRD BOX.

Plant in this Cryptograms: Ferns, mosses, ground pine, lycopodium, mushrooms.

Let the plants grow until the flowers are ready to smell or the fruit to be eaten, thus showing the continuity of nature.

Pots may be substituted for boxes if found more convenient.

LIST OF BOOKS HELPFUL TO MOTHER OR TEACHER
IN SCIENCE.

First Steps in Natural Science.....	
Steps in Scientific Knowledge.....	by <i>Paul Bert</i>
History of a Mouthful of Bread.....	by <i>Jean Macé</i>
Ministry of Nature.....	by <i>Hugh Mcmillan</i>
Bible Teachings in Nature.....	by <i>Hugh Mcmillan</i>
Sabbath in the Fields.....	by <i>Hugh Mcmillan</i>
Elementary Book of Zoölogy.....	by <i>Packard</i>
Little Folks in Feathers and Furs	
	by <i>Olive Thorne Miller</i>
The Geological Story Briefly Told.....	by <i>Dana</i>
Science Primer—Geology.....	by <i>Archibald Geikie</i>
Science Primer—Botany.....	by <i>J. D. Hooker</i>
Science Primer—Chemistry.....	by <i>H. E. Roscoe</i>
Fairy Land of Science.....	by <i>Arabella Buckley</i>
Madame How and Lady Why...by	<i>Chas. Kingsley</i>
Principles of Geology.....	by <i>Lyell</i>
How Plants Grow.....	by <i>Gray</i>
How Plants Behave.....	by <i>Gray</i>
Child's Book of Nature.....	by <i>Hooker</i>
Elementary Botany.....	by <i>Bessey</i>
Revised Manual of Botany.....	by <i>Gray</i>
The Oyster.....	by <i>W. R. Brooks</i>

- Birds and Bees.....by *Burroughs*
Little People in Meadow, Field, and Brook
by *Stella L. Hook*
Half Hours with a Naturalist.....by *Wood*
The Crawfish.....by *Huxley*
Suggestions to Kindergartens and Primary
Teachers.....by *M. J. Jewett*

BOOKS AND BOOKLETS

PUBLISHED BY THE

CHICAGO KINDERGARTEN COLLEGE.

A STUDY OF CHILD NATURE. By Elizabeth Harrison. The book is printed on laid paper, neatly bound in cloth, with gilt top. Price \$1.00 net.

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SERIES No. 1.

THE LIFE OF FRIEDRICH WILHELM FROBEL. By Frau Frobel. Price 25 cents.

THE KINDERGARTEN. By Susan L. Blow. Price 25 cents.

THE VALUE OF THE KINDERGARTEN STUDY. By Elizabeth Harrison. Delivered Oct. 1, 1890. The opening lecture of a three years' course for mothers, in connection with the Mother's Department of the Chicago Kindergarten College. Price 25 cents.

THE KINDERGARTEN AS AN INFLUENCE IN MODERN CIVILIZATION. By Elizabeth Harrison. Opening lecture before the Mothers' Department, Oct., 1891. Price 25 cents.

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STORY OF CHRISTOPHER COLUMBUS. By Elizabeth Harrison. Price 20 cents.

THE KINDERGARTEN AND ITS OPPORTUNITIES FOR WOMEN. By Mrs. J. N. Crouse. A paper read before the Federation of Clubs in Chicago, May 13, 1892. Price 20 cents.

THE ROOT OF THE TEMPERANCE QUESTION, FROM A KINDERGARTEN STANDPOINT. By Elizabeth Harrison. Price 20 cents.

THE EDUCATIONAL VALUE OF TOYS. From "A Study of Child Nature." By Elizabeth Harrison. Price 20 cents.

THE LEGEND OF THE CHRIST CHILD. Adapted from the German, by Elizabeth Harrison. Price 20 cents.

SERIES No. 3.

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1. Friedrich Froebel. By Elizabeth Harrison. Price 10 cents.

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(2) Dante, (3) Shakespeare, and (4) Goethe (not yet read Elizabeth Harrison. Price 20 cents each.

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