Intro to Science

I wrote this program with the goal of giving you the tools to gently introduce your student to the world of science. Your early elementary student will work on increasing their observation skills as they learn from different topics within the major disciplines of science. Intro to Science lays out weekly topics to study along with a main idea to emphasize. Each week includes an introduction, an experiment and nature study plans, plus additional books and activities. Intro to Science is designed to be used with your Kindergartner or 1st grader.

Introducing the topic:

The introductions include simple explanations, demonstrations and/or guided observations for you to use to introduce your students to the week's topic. There is a script for you to use, but feel free to use your own words or add to and delete from the script. The main purpose of introducing the topic is to share with your student what they will be studying for the week.

Experiments:

The experiments are the core of this program and are designed to help your student see science in action. Almost all of the experiments come from *More Mudpies and Magnets*. The goal here is to demonstrate science for your student, allowing them to discover more about the world around them. Don't expect them to be able to predict the outcome or to draw abstract conclusions at this age. Instead allow them to observe and tell what they have learned. All the experiment pages you will need are found in the student notebook pages.

Nature study:

Nature studies will also coordinate with the weekly topic. The purpose of these nature studies is to have your student learn about nature through discovery and observation. I have scheduled pages in *The Handbook of Nature Study* for you to read for preparation whenever possible. You can choose to have your student make their own nature study journal or use the nature study template page in the Appendix at the back of this guide. If you use the template page, have your student draw what they saw during your walk or paste a picture from your walk in the box, then have your student tell you about what they observed. You can write down their observations for them on the lines provided.

Additional Books and Activities:

The additional books are optional ones that will coordinate with your weekly topic. They are suggestions that you can get from your local library. I have also scheduled pages from the *Usborne First Science Encyclopedia* when they apply. The additional activities include craft ideas, snack options and projects that tie into the weekly topic.

Student Notebook Pages:

The student notebook pages are sold separately. They include coloring, experiment and additional activity pages to use for each week. The following is a description of how each page is designed to be used.

- coloring page: read the main idea at the bottom of the page to your student and have them color the picture.
- experiment page: take a picture of your experiment and paste it in the box, have your student tell you what they learned from the experiment and write it down for them on the lines provided.
- activity page: have your student draw a picture or paste in a picture of the craft project they made on the sheet provided.

How to schedule this study:

I wrote Intro to Science as a topical study, each week stands alone, but also fits into a 6 week unit. This gives you the teacher complete freedom in which order you want to do this study, how much you want to do in a week and how many days you want to study science in a week. This is so that you can pick and choose activities that interest your student. I would suggest scheduling science for 2(20 min) days a week or 5(10 min) days a week. Each week I have included two sample schedules to give you an idea of how you could schedule your week. You can choose to use these as your guide or create your own schedule using one of the blank scheduling templates in the Appendix at the back of this guide.

How to include an older student:

If you want your older student to do this study along with your other students, here are some suggestions to increase the difficulty of this program so that it is appropriate for them.

- have them read the additional books to your younger student
- have them read about the weekly topic in the Usborne Internet-linked Science Encyclopedia
- have them write full narrations and do a more detailed write-up for the experiment using the pages included in the Appendix at the back of this guide

Final Thoughts:

My hope is that this curriculum will spark your student's interest in learning more about the natural world around them. As the author and publisher of this curriculum I encourage you to contact me with any questions or problems that you might have concerning Intro to Science at info@elementalscience.com. I will be more than happy to answer them as soon as I am able. Also, be sure to check the Elemental Science Yahoo Group, under the Intro to Science Files section for some of the pictures and additional files that are used in this program so that you don't have to create them. I hope that you will enjoy your introduction to the world of science!

Copyright Page

Book List

The following books are what I used when planning this program. I recommend that you purchase or download them.

Experiments: (This is the main spine for this program.)

- *More Mudpies and Magnets: Science for Young Children* by Sherwood, Williams & Rockwell

Nature Study:

- *The Handbook of Nature Study* by Anne Botsford Comstock (available for free download from www.mainlesson.com)
  (**Note**: This book is more of a teacher reference than a book to read to your student. The idea is that you as the teacher will read the material ahead of time so that you will have the knowledge to assist your student as they learn through their own observations of nature. It is NOT designed to be read to the student.)

Optional Reference: (This encyclopedia is scheduled throughout the year when it contains a coordinating topic. If you plan on using it, I recommend that you purchase it since you will use it for multiple weeks.)

- *Usborne First Science Encyclopedia* by Rachel Firth

Overview of the Areas of Sciences Studied

The following areas of science will be studied through discovery and observation throughout the year.

- Week 1-6: Chemistry
- Week 7-12: Physics
- Week 13-18: Geology
- Week 19-24: Meteorology
- Week 25-30: Botany
- Week 31-36: Zoology

Intro to Science Week 5

Topic: Colors

Main Idea: Two colors can be mixed to form a new color.

Introducing the Topic: Have 3 clear glasses, one half filled with yellow water, one half filled with blue water and one empty on the table in front of you. Say to your student, "In front of me are two glasses with different colored water and one empty glass. Both yellow and blue are primary colors. Let's be color chemists and see what happens when we pour the two colors into the empty glass. (You can pour both or let your students do the pouring.) What color did we make? (*green*) That's right, green is a secondary color because it is made by mixing two primary colors. This week we are going look at what happens when we mix colors." You may want to also introduce the color wheel and/or rainbows at this time. Have your student fill out and color the coloring page found in the student workbook on pg. 18.

Experiment:

- *More Mudpies & Magnets* pg. 47, "Colored Water Chemistry" This experiment will help your student to see what happens when you mix different colors. Have your student complete the experiment page found in the student workbook on pg. 19.
  Materials needed:
  - several small clear glasses
  - large dish pan
  - red, yellow and blue food coloring

Nature Study: Colors in Nature

- Preparation: This week you are looking at colors and how they mix to form new colors. Rainbows are good examples of primary and secondary colors in nature, so this week your nature study time will focus on that.
- Nature Study time: Go on a walk with your student to see if you can find a rainbow. If you're lucky enough to see one, allow them to make their own observations and then sketch the rainbow in their nature journal. If not, find a sunny spot to use a prism to create a rainbow on a sidewalk. Allow them to make their own observations and then sketch the rainbow in their nature journal.

Additional Books:

- *Usborne First Science Encyclopedia* pg. 52-53 (light and color)
- *All the Colors of the Rainbow* (Rookie Read-About Science) by Allan Fowler
- *The Magic School Bus Makes A Rainbow: A Book About Color* by Joanna Cole
- *I Love Colors!* (Hello Reader!, Level 1) by Hans Wilhelm

Additional Activities:

- Craft: Paint your own rainbow
  Give your student a paper plate with a little red, yellow and blue paint on it. Have them mix the colors to make orange, green and purple. Then let them paint their own rainbow on the sheet found in the student workbook on pg. 20.
- Snack-time: Make iced sugar cookies
  Make sugar cookies using your favorite recipe or purchase them from the store. Give your student several bowls with a little bit of white icing in each. Let them choose which colors to add to their icing. Then decorate the cookies with the different colors they created.

- Activity: Making Rainbows

  Pour milk in a bowl. Place three drops of red, yellow and blue food coloring in 3 different places in the bowl. Add a drop of soap and watch the colors mix.

Scheduling Options:

2-days a week:

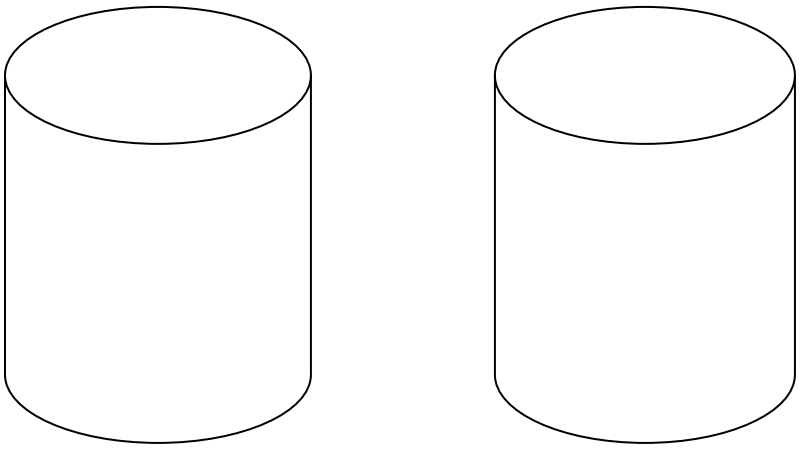
Day 1	Day 2
Introduce the topic: Read the section in the teacher's guide and have your student fill out and color the coloring page in the student workbook. **Experiment:** "Colored Water Chemistry" found in *More Mudpies & Magnets* pg. 47. Have your student complete the experiment page from the student workbook.	**Nature Study:** Go on a nature walk to see if you can find a rainbow, if not create one with a prism. Afterwards, have your student make a nature journal entry. **Additional Activity:** Paint your own rainbow. Have your student paint their rainbow on the activity page in the student workbook.
Supplies I Need for the Week: • 3 clear glasses, blue & yellow colored water • several small clear glasses, large dish pan, red, yellow and blue food coloring • prism • paper plate, red, yellow and blue paint	
Things I need to Prepare:	

5-days a week:

Day 1	Day 2	Day 3	Day 4	Day 5
Introduce the topic: Read the section in the teacher's guide and have your student fill out and color the coloring page in the student workbook. Then do the Making Rainbows activity.	**Experiment:** "Colored Water Chemistry" found in *More Mudpies & Magnets* pg. 47. Have your student complete the experiment page from the student workbook.	**Learn More:** Choose one of the additional books to read to your student. Then make iced sugar cookies.	**Additional Activity:** Paint your own rainbow. Have your student paint their rainbow on the activity page in the student workbook.	**Nature Study:** Go on a nature walk to see if you can find a rainbow, if not create one with a prism. Afterwards, have your student make a nature journal entry.
Supplies I Need for the Week: • 3 clear glasses, blue & yellow colored water, milk, food coloring, dish soap • several small clear glasses, large dish pan, red, yellow and blue food coloring • supplies to make sugar cookies and icing • paper plate, red, yellow and blue paint • prism				
Things I need to Prepare: • Get book from library				

Intro to Science Week 5

Our two glasses...



What happened when we mixed them...

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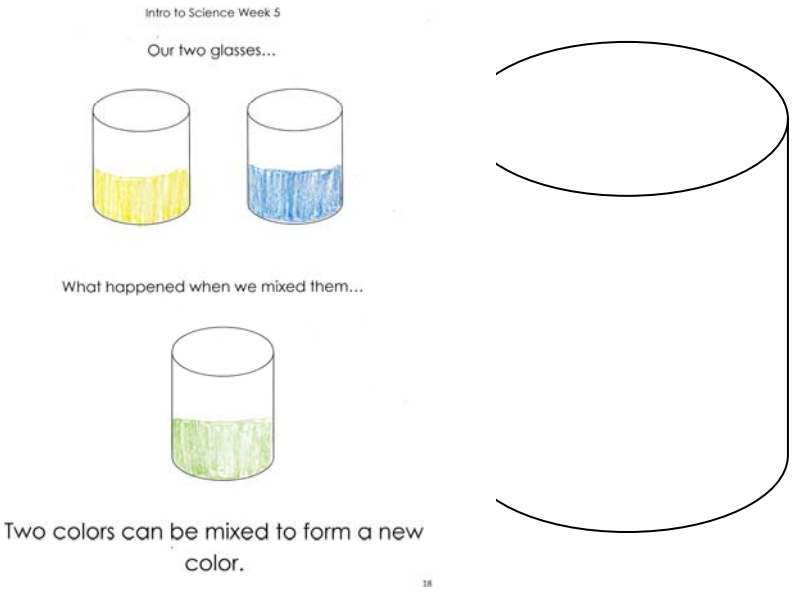

Two colors can be mixed to form a new color.

Intro to Science Week 5

Picture of my Experiment

What I learned from my experime

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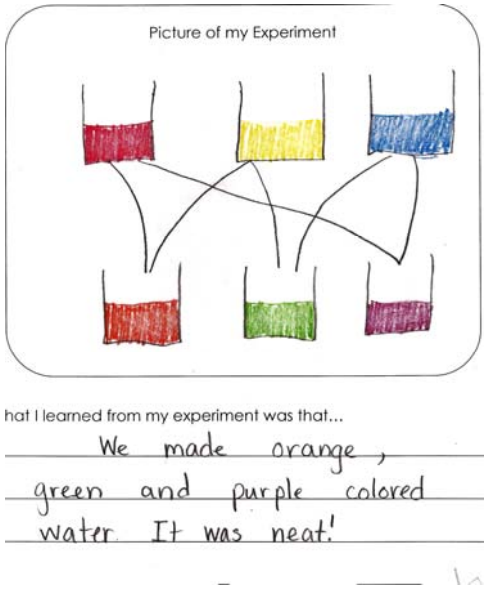

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My Rainbow

Intro to Science Week 26

Topic: Flowers

Main Idea: Flowers are the reproductive part of a plant

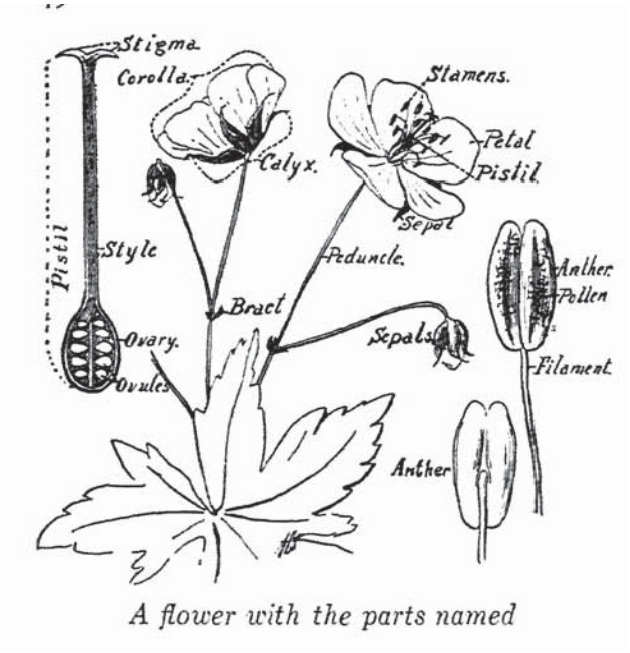
Introducing the Topic: Have a flower out on a plate on the table in front of you (make sure it's one that has a full flower and a bud, but not a lily as you are going to use one for your experiment). Say to your student, "This is a flower. Flowers are the reproductive part of a plant. They produce the seeds that plants grow from. All flowers begin as buds (point out the bud). All flowers have petals to help attract insects towards the center of the flower. In the center of the flower are the parts (especially the pistol, the anthers and the pollen) that make a seed. Insects move the pollen from the anther to the stamen and then it is able to make the seed. We call this process pollination. This week we are going to look closer at flowers." Have your student color the coloring page found in the student workbook on pg. 80.

Experiment:

- "Dissecting a Flower" In this experiment your student will have a chance to observe all the parts of a flower. (**NOTE:** The goal of this experiment is to have your student examine a flower, if they are not interested in hearing about all the parts, skip it and just let them cut open and examine the flower, answering any questions that they may have.) Have your student complete the experiment page found in the student workbook on pg. 81.

  Materials needed:
  - Lily flower (or other single flower with clearly defined parts)
  - razor or knife (be careful, adult use only)

  Steps to complete:
  1. Give each student a lily flower to examine. Use the diagram to help you point out the parts of the flower.
  2. Point out the sepals and the petals of the flower; explain that these are there to help attract insects to the flower.
  3. Next point out the stamens, the anthers and the pollen; explain that these are known as the male parts of a flower. Cut one of the stamens off and let your student examine it closer. Cut open the anther and observe what's inside. (Be careful of the pollen from a lily as it can stain clothing).
  4. Next point out the pistol, the stigma and the ovary; explain that these are the female parts of a flower. Show how the insect transfers the pollen to the stigma which then travels down the style to the ovaries where it combines with the ovules for form the seed. Cut out the pistol and cut it in half so that your student can observe the path of the pollen.
  5. Allow your student time to make additional observations.



A flower with the parts named

From Handbook of Nature Study pg. 456

Nature Study: Sunflowers

- Preparation: Read the pages 574-577 in *Handbook of Nature Study* to learn more about sunflowers.
- Nature Study time: Go on a walk and try to find some sunflowers. Allow your student to make observations about the sunflower while also guiding them to see the various parts of the flower. (If you cannot find sunflower outdoors you can either purchase one or choose to study a different flower that you have found). Once you get home have them make an entry into their nature journal.

Additional Books:

- *The Reason for a Flower* (Ruth Heller's World of Nature) by Ruth Heller
- *Planting a Rainbow* by Lois Ehler

Additional Activities:

- Craft: Paint a field of flowers

  Have your student paint their own field of flowers on the sheet found in the student workbook on pg. 82. Let your student's imagination run free for this project, the results will be beautiful and interesting.
- Snack-time: Cake

  Have a piece of cake that is decorated with icing flowers ☺.
- Activity: Additional Experiment

  More Mudpies & Magnets pg. 149, "Flowers Forever" In this experiment your student will preserve flowers.

Scheduling Options:

2-days a week:

Day 1	Day 2
Introduce the topic: Read the section in the teacher's guide and have your student color the coloring page in the student workbook. **Experiment:** "Dissecting a Flower" found in the teacher's guide.	**Nature Study:** Go on a nature walk to observe sunflowers. Afterwards, have your student make a nature journal entry. **Additional Activity:** Paint a field of flowers. Have your student use the activity page in the student workbook.
Supplies I Need for the Week: • flower with a bud • lily, razor or knife • different colors of paint	
Things I need to Prepare: • Read the pages 574-577 in *Handbook of Nature Study*	

5-days a week:

Day 1	Day 2	Day 3	Day 4	Day 5
Introduce the topic: Read the section in the teacher's guide and have your student color the coloring page in the student workbook. Then do the "Flowers Forever" experiment using your flower.	**Experiment:** "Dissecting a Flower" found in the teacher's guide.	**Learn More:** Choose one of the additional books to read to your student. Then eat cake with flowers on it for snack time.	**Additional Activity:** Paint a field of flowers. Have your student use the activity page in the student workbook.	**Nature Study:** Go on a nature walk to observe sunflowers. Afterwards, have your student make a nature journal entry.
Supplies I Need for the Week: • flower with a bud, borax, white corn meal, jar • lily, razor or knife • cake that is decorated with flowers • different colors of paint				
Things I need to Prepare: • Read the pages 574-577 in *Handbook of Nature Study* • Get book from library				

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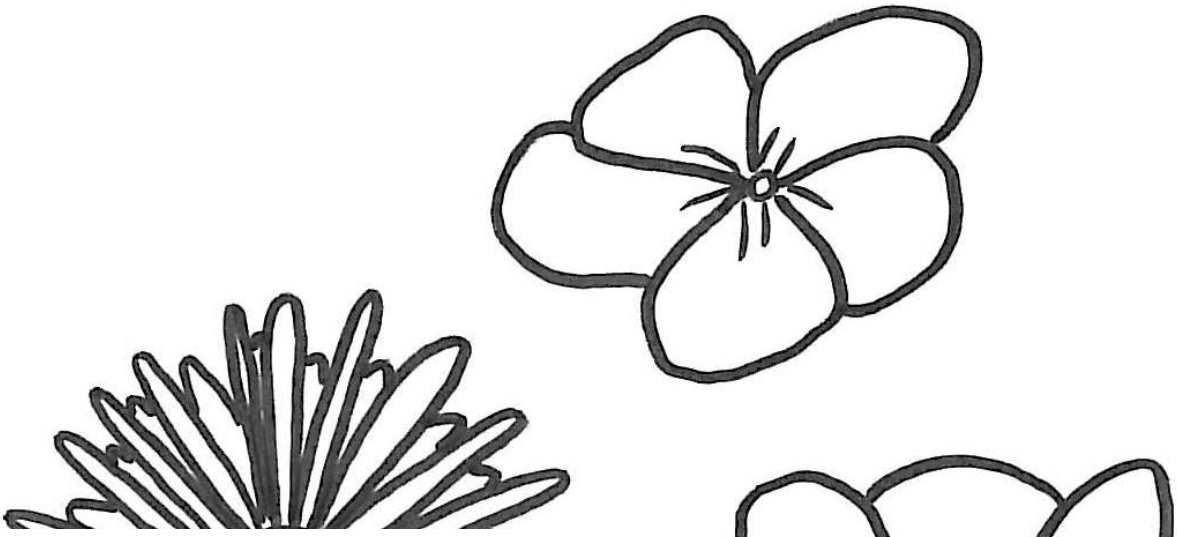

Intro to Science Week 26

Flowers are the reproductive part of a plant.

Flowers are the reproductive part of a plant.

Picture of my Experiment

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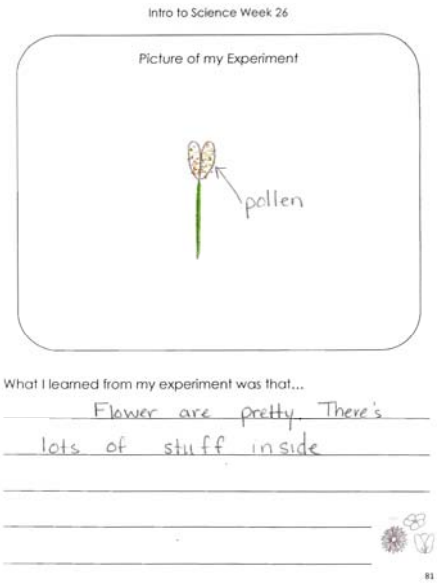

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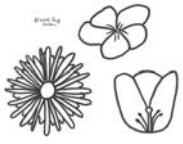

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My Field of Flowers