Contents

Introduction

Common Sense Science – Space can be used in a single or multilevel classroom, homeschool, co-op, or science club. Everything you need for a complete study of space is in this book and the **Student Materials Packet**. Older students will need access to basic reference materials.

How to Use the Multilevel Approach

The lessons in this book include foundational content and appropriate activities for third through sixth grades. First and second grade activities are also included so that younger students can be included in multilevel teaching situations. For example, a first grader will learn that the sun is a ball of hot gases in the center of our solar system. This student is exposed to more information but not expected to retain it. In the same lesson, a sixth-grade student will be expected to describe the four main layers of the sun: core, photosphere, chromosphere, and corona.

In the activity sections, icons are used to designate the levels in specific assignments.

 indicates the first level, which is the non-reading or early reading student. This level mainly applies to first and second grade students.

 is used for the second level. This includes the student who is still working to be a fluent reader. This level is primarily designed for third and fourth grade students.

 denotes the third level, or fluent reader. This level of activities will usually apply to fifth and sixth grade students.

Choose the directions that fit the age of your student. If you are teaching multiple grades, start with the younger students' directions.

Vocabulary Words

"If I know the vocabulary, I know the content. If I know the content, I know the vocabulary."

Dr. Ruth Beechik

Vocabulary words are introduced in the context of each lesson. A new word must be met fifteen times or so before it becomes a part of our speaking vocabulary, so use the words frequently as you present and discuss the material. You can also supplement the lessons with easy-to-read library books on the subject giving them even more opportunities to "meet" the words.

A vocabulary word list is included in the **Student Materials Packet**. Give students the appropriate word list for each lesson and instruct them to use the words in discussion and writing assignments for reference and review. Students can make a vocabulary book by gluing the word list strips onto a sheet of paper.

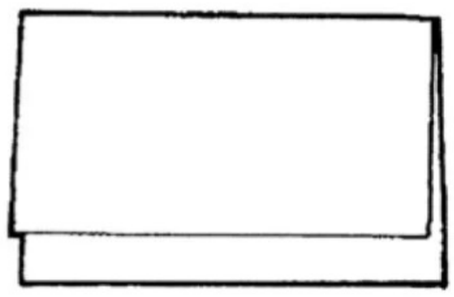
Graphic Organizers

"Tell me something and I forget. Show me something and I remember. Involve me in something and I learn."

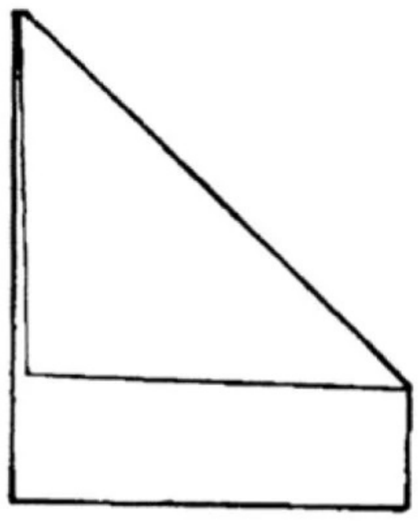
Dinah Zike

Common Sense Science – Space uses *3D Graphic Organizers* to help students of all levels better understand concepts by taking complicated information and breaking it down into visual parts. Although the content for the level will generally be the same, assignments and expectations for recording information learned will vary for each level. To make the Graphic Organizers, you will need the accompanying **Student Materials Packet.**

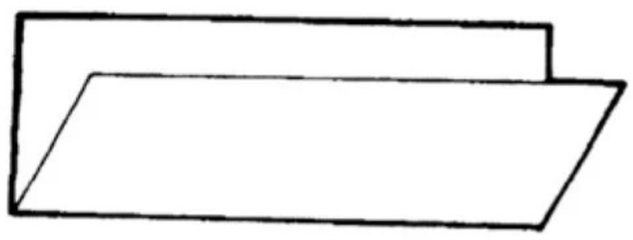
There are three basic folds used to construct the Graphic Organizers. Practice making these three basic food folds before you introduce them to your students.



Hamburger



Taco



Hot Dog

Several of the *3D Graphic Organizers* expand over a series of lessons. For this reason, you will need a storage system for each student's *3D Graphic Organizers.* A pocket folder or a re-closable plastic bag works well.

The Graphic Organizers used in this program were created by Dinah Zike and used with her permission. To learn more visit www.dinah.com.

Labs

The study of science is based on the Scientific Method – make an observation, come up with a question or concept, make a prediction (hypothesis), experiment, and draw conclusions. Labs implementing this method provide context for the information found in the science lessons, increasing understanding as well as retention. These steps can be overwhelming to young children and should be used as a guideline to avoid frustrating them.

To simplify the process, the labs in *Common Sense Science* use the following approach:

Students

- are asked a question or presented a concept
- make a prediction of what will happen
- experiment and observe
- draw a conclusion based on what they have observed

Students record their predictions, observations, experiments, and conclusions in a Lab Book.

The following lab materials list will help you to prepare. Labs can be completed by the class or by each student.

Lab 4-1

newspaper
yardstick or long dowel
modeling clay
rocks
compass

Lab 4-2

clear gallon container
bleach
flashlight

Lab 6-1

empty thread spool
3' kite string
duct tape
ping-pong ball
metal washer

Lab 7-1

deep, plastic pan or a sandbox
sand
balls of various weights and sizes

Lab 8-1

1½", 3" styrofoam balls
modeling dough or putty
desk lamp
2 wooden skewers
24"x4" cardboard

Lab 9-1

2 thermometers
2 glass jars
plastic wrap
rubber band

Lab 10-1

sand
steel wool
rubber gloves
baking dish
scissors

Lab 11-1

clear bowl
water
marble
ping-pong ball

Lab 12-1

plastic, 2 liter soda bottle with cap
flashlight
candle
matches

Lab 12-2

modeling clay
string
thin, wooden dowel or skewer
saucepan
water

Lab 15-1

brick or heavy object
long, thin balloon
5 yards of string
clamp
drinking straw

Lab 16-1

thick cardboard
2 brads
2 paperclips
modeling clay
24" thin, wooden dowel
thick nail
small cup hook

Lab 16-2

rubber gloves
nuts and bolts
plastic dishpan
water

Additional Materials Needed

Students will need a **Student Materials Packet** which contains:

- Vocabulary words
- Images for Graphic Organizers, Lab Book, and Space Timeline

Each student will also need pencils, scissors, glue, colored pencils or crayons, index cards, and multi-colored 8.5" x 11" paper and cardstock. Each student will need a large re-closable bag to keep paper projects safe.

How to Use this Book

Lessons in the *Common Sense Science* series are divided into 18 three-day weeks. With this schedule, you will be able to complete two books a year.

Days 1 and 2 introduce content and the vocabulary needed to understand it. The lessons are scripted, so the teacher just needs to read them to the students. Older students may want to read the lessons and work independently. As you read, show them the images that will help them visualize what is being taught and then discuss what they have learned. Students will then have an opportunity to recreate and record what they have learned in a visual format called a Graphic Organizer that teaches and reviews the information.

During this time, they will also experiment with the material through labs that use household items and are easy to complete. They will practice exploring concepts by predicting outcomes, experimenting, and drawing conclusions.

On Day 3, students will have opportunities to explore and further investigate the subject matter covered during the week. Choose activities that your students are most interested in and fit your time schedule. Include library books, videos and other teaching tools available through the Internet to further enrich your students' learning experience.