



# SCIENCE IS SENSATIONAL!

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FOR THE PRESBYTERIAN WEEKDAY MINISTRIES CONFERENCE

MASTER REGISTERED LEVEL TRAINER #1420  
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**Learning Objectives** Successful participants will:

- Identify the steps in the scientific process
- Implement 3 science activities with the children in their care

## THE SCIENTIFIC PROCESS

1. **Have a** \_\_\_\_\_.
2. **Make a** \_\_\_\_\_.
3. **Design an** \_\_\_\_\_.
4. \_\_\_\_\_ **your idea.**
5. \_\_\_\_\_ **your results.**

## THE SCIENTIFIC PROCESS IN ACTION:

### LIGHT & COLOR

#### CONCEPTS CHILDREN CAN LEARN

- Colors mix to make other colors.
- Light can shine through some things and not others.
- Colored lights mix to make new colors, too.
- Light has colors in it.
- Bending light (refraction) shows the colors.
- A prism is a tool scientists use to bend light.

### Mixing Colors

#### Materials:

- Eye droppers
- Food coloring in water (red, blue, yellow)
- White divided trays
- Large clear plastic trays
- Round palette paint trays

Use a strong concentration of food coloring in water. Provide one eye dropper in each color.

The children use the eye droppers to put two or more primary colors into one of the circles in their palette.

When palette is full, they may dump it into their large tray and start again.

### Rainbow in a Bottle

#### Materials:

Tall clear jar or vase                      water                      food coloring                      vegetable oil

#### Procedure:

Pour equal amounts of water and oil into vase, filling it almost full. Squeeze a few drops of each color food coloring into the vase, then just watch! After a few minutes, the drops will slowly sink through the oil. When they reach the water, they disperse and swirl through the water. The children enjoy lying on their stomachs to get a good view!



### Make a Rainbow

**Materials:** 1 prism, 1 piece of white paper, crayons or markers in the colors of the rainbow

**Procedure:**

Hold the prism in the sun over the white paper. Explain how the prism works. Let the children draw the rainbow they see. (Warn them never to look directly at the sun.)

You may also using a water hose outdoors to make rainbows.

### Light Table or Window Collage

**Materials:**

- Light table or window with laminating film to cover
- Various cut-out shapes of cellophane and tissue paper in a variety of colors
- Glue sticks

**Procedure:**

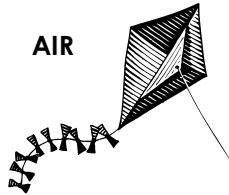
The children glue the cellophane and tissue paper shapes onto the laminating film. Encourage them to layer the pieces to create new colors.

Laminate the project when completed, as the glue does not hold the pieces well. The collage looks great hanging in the window!

### Other Activities

- Flashlights & things to shine light through
- Shadow box with colored lights (red, blue, green)
- Flashlights with colored cellophane (red, blue, green)
- Color Mixing with paint

AIR



### Goals & Concepts

- Air takes up space.
- Air pushes.
- Slow-moving air pushes more strongly than fast-moving air. This helps planes fly.
- Goal: Experiment with moving air.

### Hanging Water

Fill a firm plastic cup to overflowing and lay a small plastic plate on top of it. Put one hand over the plate and turn the cup upside down. Take your hand away from the plate. It will stay on the glass, and the water won't come out!

### Diving Cup

Push a tissue into the bottom of a firm plastic cup. Turn the cup upside down, and carefully immerse it in water. It won't get wet (unless you go really deep).

(Press 1976, p. 58)

### Pom-Pom Races

**Materials:**

- pom-poms of various sizes
- Straws (paper-wrapped)
- Cardboard tube "track"

**Procedure:**

The children may use straws to blow the pom-poms across the track. Be sure each child gets a wrapped straw and throws it away when done. This activity sometimes gets a little "slobbery", so have your sanitizing spray ready! This activity may also be done with battery-operated foam-blade fans.



## OTHER ACTIVITIES

- Water & Air (Let out air from a bag while it is under water)
- Make and fly paper airplanes
- Bernoulli's Paper, Raise the wing
- Balloon-powered "jet"
- Construct an airplane
- Marshmallow masher (Pump air into bottle with marshmallows inside)

### Windbag Experiment

**Materials:** 1 WINDBAG or diaper genie

**Procedure:**

Tie a knot at one end of the bag. Have a partner hold the closed end of the bag straight out.

Hold the windbag about 10" away from your mouth.

Using one breath, blow into the bag as hard as you can.

Quickly close the bag so no air escapes.

### Experimenting with Fans

**Materials:**

- Battery-operated fans with foam blades
- Clipboards and pencils
- Paper: "Things that Air Pushes..."

**Procedure:**

You may gather some items for testing, or let the children explore items in the classroom.

The children use their fans to test whether an item moves or not, and record their results on the paper with a drawing or tally mark.

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## WORMS



### Goals & Concepts

- Earthworms live under the ground, and need moisture (wetness) to stay alive.
- Earthworms eat dead leaves and tiny animals in the soil (dirt) and leave castings behind. This helps make the soil good for plants to grow.
- Earthworms' bodies have over 100 segments. If they lose a few, they can grow more.
- Earthworms move by stretching and shortening their muscles. They have tiny hairs that keep them from slipping.
- We can learn about earthworms by watching them closely and reading books about them.

### ACTIVITIES

#### Where do worms live?

Provide children with materials for finding and closely observing worms outside:

- Craft sticks for gently digging
- White, wet paper towels to place worms on for observation
- Magnifying glasses
- Clipboards and pencils for recording observations

#### SOIL TESTS: Which ones would the worms like best?

Provide: plastic containers of sand, compost, and soil  
small amount of water in watering can  
spoons and sieves  
sturdy paper

Allow children to explore the soils by:  
Touching, sifting, smearing, rolling into balls,  
adding water, squeezing, etc.



**SETTING UP A WORM FARM**

**Materials:** worm farm kit or clear container, soil, sand, shredded newspaper, water, worms, alfalfa hay

**Procedure:** Put a layer of shredded newspaper in the bottom of the farm

- Add the soil
- Add a smaller amount of sand on top
- Put the worms on top of the sand
- Sprinkle with a little water
- Feed with alfalfa.

**Other Activities:**

- Observing worms' bodies and how they move  
(Observe worms on trays or clear plastic cups with magnifying glasses, record observations with pencils and clipboards)
- Experimenting with worms on trays  
Set up conditions on tray, observe where worms go (light and dark, wet and d

**RESOURCES**

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www.stevespanglerscience.com

**Have fun exploring & experimenting!**

**PLANNING SCIENCE EXPERIENCES**

Topic	Age	Activities	Materials