Included with this book is a CD containing printable PDFs of the Student Book (SSS_student.pdf) and the Instructor’s Guide (SSS_instructor.pdf). A PDF reader is required to view the files.

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Science Step by Step
Instructor’s Guide

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Prerequisite skills

- Lift and pour water up to a fill line
- Discriminate between an empty bottle and one with colored water

Materials

- Two 16-ounce clear plastic bottles
- Water
- Food coloring
- Colored plastic tape
- Dishpan (or tub)
- Watering can (or pitcher)

Teaching tips

- Fill one bottle with water and add a drop of food coloring so it is easy to tell that it contains water. Label the bottle “water.” Label the other bottle “no water.”
- Use the colored tape to indicate a fill line in the dishpan. Make sure the water will be deep enough so the bottle with water can clearly sink below the surface.
- Put enough water in the watering can to fill the dishpan to the fill line. Label the can “water.” To keep the can from being too heavy, you might need to provide more than one can of water.

Results

Density refers to the weight of an object or liquid, given its size. The empty bottle floats because it is filled with air, which is less dense than water. The bottle of water sinks because it has the same density as the water in the dishpan.
2  Floating soda

Prerequisite skills
- Lift and pour water
- Discriminate between a can of regular soda and a can of diet soda.

Materials
- 2 cans of soda, same brand, 1 regular and 1 diet
- Colored plastic tape
- Transparent tub wide enough for the 2 cans of soda to sit side-by-side and deep enough for the diet soda to float up several inches from the bottom.
- Water
- Watering can (or pitcher)

Teaching tips
- Label the soda cans “soda” and “diet soda.”
- Use the colored tape to indicate a fill line on the inside of the tub.
- Put enough water in the watering can to fill the tub to the fill line. Label the can “water.” To keep the watering can from being too heavy, you may need to provide more than one can of water.

Results
The regular soda contains sugar, whereas the diet soda contains artificial sweetener. Sugar is denser than the sweetener. Therefore, even though the 2 cans contain the same amount of liquid, the density of the liquid is different, causing the regular soda to displace more water than does the diet soda.
**Prerequisite skills**

- Hold a magnet and move it around under a piece of poster board
- Understand the concepts of under and against
- Understand the concepts of moving and not moving

**Materials**

- Masking tape
- Lightweight poster board
- Large blocks or books
- U-shaped magnet
- Large paperclips

**Teaching tip**

Create a little table by taping some poster board to a couple of large blocks.

**Results**

The magnetic pull of the magnet passes through the poster board.
**Prerequisite skills**

- Hold a magnet and use it to pick up paperclips
- Count to 10 with a number line
- Copy the numbers 1–10

**Materials**

- 2 identical, U-shaped magnets
- Large paperclips
- 2 envelopes
- 2 number lines (1–10)
- Paper
- Marker

**Teaching tips**

- Select 2 easy-to-hold magnets, powerful enough to pick up a number of large paperclips.
- Put the paperclips into 2 envelopes, 10 paper clips in each envelope.
- Create 2 simple number lines (1–10), leaving enough space to place a paperclip by each number.
- After each student writes down how many paperclips he or she picked up, ask who has more.

**Results**

Most paperclips are made of steel, which is attracted to magnets.
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