

Changes in Materials for *Balancing and Weighing*



Since publication of the *Balancing and Weighing Teacher's Guide First Edition*, Plasti-Tak™ is no longer available. For that reason, we have replaced Plasti-Tak™ with masking tape. Masking tape remains on the "Needed But Not Supplied Materials" list and is commonly available in most schools or can be brought from home. This change in materials requires revised instructions in the *Teacher's Guide* for Lessons 8, 9, 10, and 11.

This errata set includes the following:

- For the *Balancing and Weighing Teacher's Guide First Edition*— revised pages 4, 72–74, 76, 83–85, 90, 92, and 101

Photocopy and distribute these new instruction pages as needed.

If you have questions about these changes or about the module in general, call Carolina's product information staff at 800-227-1150 (8 am–5 pm ET, M–F), or email stc@carolina.com.

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Materials List

Below is a list of the materials needed for the *Balancing and Weighing* unit. Please note that the metric and English equivalents in this unit are approximate.

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|-----|--|---|
| 1 | <i>Balancing and Weighing</i> Teacher's Guide | Round oat cereal, 340 g (12 oz) |
| *30 | optional Student Notebooks | Elbow macaroni, 680 g (1½ lb) |
| 30 | new, unsharpened pencils (standard size), with erasers | Sunflower seeds (unsalted and in the shell), 450 g (1 lb) |
| 30 | jumbo paper clips | Split peas, 1.3 kg (2½ lb) |
| 31 | sheets of heavy orange paper, 67 lb, 22 × 28 cm (8½ × 11 in) | 8 plastic pails with lids, 1 liter (1 qt) |
| 15 | beam boards | 30 red stick-on circles |
| 15 | fulcrums | 30 green stick-on circles |
| 62 | squares of red construction paper, 10 cm (4 in) square | 30 blue stick-on circles |
| 151 | plastic drinking straws | 30 orange stick-on circles |
| 15 | boxes of No. 1 paper clips, 100 clips per box | 15 yellow stick-on circles |
| 15 | sheets of red construction paper, 23 × 30.5 cm (9 × 12 in) | 1 red marker |
| 15 | sheets of green construction paper, 23 × 30.5 cm (9 × 12 in) | 1 blue marker |
| 15 | sheets of blue construction paper, 23 × 30.5 cm (9 × 12 in) | 1 green marker |
| 15 | sheets of yellow construction paper, 23 × 30.5 cm (9 × 12 in) | 1 yellow marker |
| 15 | equal-arm balance support posts | 1 orange marker |
| 15 | equal-arm balance cross beams | 390 glass marbles |
| 15 | equal-arm balance attachment pins | 75 film canisters with lids |
| 15 | equal-arm balance bases | 150 red Unifix Cubes™ |
| 30 | equal-arm balance S-hooks | 100 blue Unifix Cubes™ |
| 30 | equal-arm balance plastic pails, 1 liter (1 qt) | 100 yellow Unifix Cubes™ |
| 1 | stick of clay | 100 green Unifix Cubes™ |
| 1 | plastic knife | ** Scissors |
| 1 | resealable plastic bag (for clay) | ** Newsprint for all charts |
| 15 | Ping-Pong balls | ** Markers |
| 15 | heavy-duty plastic spoons | ** Masking tape |
| 15 | wood blocks, 30 g (1 oz) | ** Transparent tape |
| 30 | plastic cups, 296 ml (10 oz) | ** Student writing paper |
| 15 | metal cubes, 60 g (2 oz) | ** Magnets |
| 15 | acrylic cylinders, 2.5 cm diameter × 2.5 cm long (1 × 1 in) | ** Glue or paste |
| 2 | Post-it™ pads, 76 mm (3 in) square (100 sheets per pad) | ** Crayons |
| 19 | sheets of newsprint (for use in Lessons 8, 9, and 11), 61 × 91 cm (24 × 36 in) | ** Transparent Con-Tact™ paper |
| 60 | plastic cups, 74 ml (2½ oz) | |

***Note:** The optional Student Notebooks are available from Carolina Biological Supply Company (1-800-334-5551).

****Note:** These items are not included in the kit but are commonly available in most schools or can be brought from home.

Materials*For each student*

- 1 copy of the blackline master **The Four Objects**
- 1 sheet of writing paper
- 1 pair of scissors

For every two students

- 1 assembled equal-arm balance
- 1 piece of clay
- 1 plastic cup, 296 ml (10 oz)
- 1 Ping-Pong ball
- 1 plastic spoon
- 1 wood block

For the class

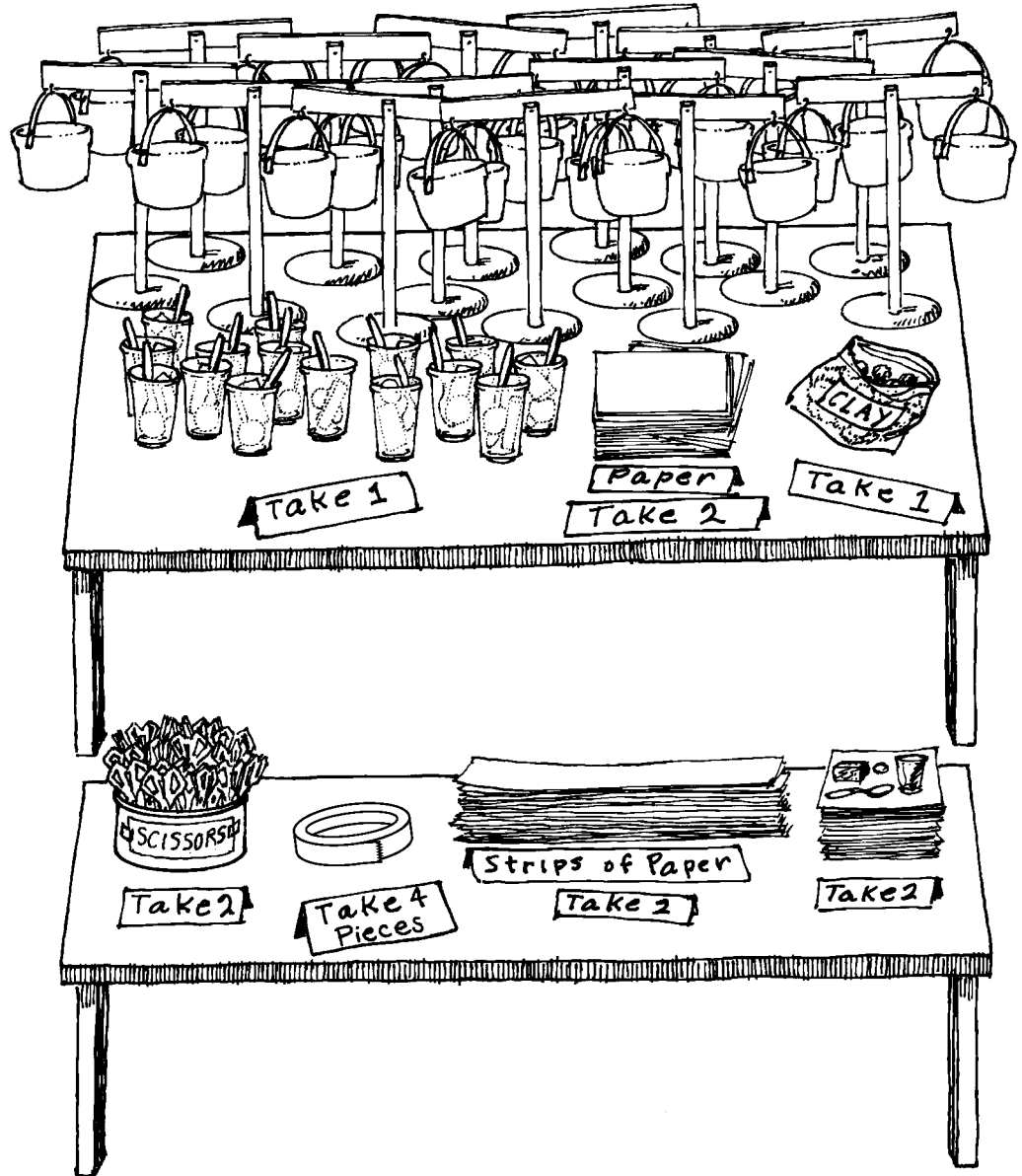
- 1 copy of the blackline master **Teacher's Objects**
- 5 sheets of newsprint
- 1 marker
 - Masking tape
- 4 magnets (optional)

Preparation

1. Make enough copies of the blackline master **The Four Objects**, on pg. 80, so that each student has one set of pictures of the four objects.
2. On one sheet of newsprint, write the title "From Lightest to Heaviest."
3. Using the remaining four sheets of newsprint, make one strip of newsprint for each student.
 - Fold a sheet of newsprint in half along the longer side.
 - Now fold the sheet in half in the same direction two more times. After you have made all three folds, cut the sheet into eight strips, each measuring approximately 61 × 11 cm (24 × 4½ in). A paper cutter may make this task easier.
 - Repeat these steps with the remaining three sheets of newsprint.
4. Make a copy of the blackline master **Teacher's Objects**, on pgs. 78–79. Cut out the six pictures. You will use only four pictures in this lesson—the Ping-Pong ball, plastic spoon, wood block, and plastic cup. You will use the metal cube and acrylic cylinder for the first time in Lesson 9. Because the pictures will be used repeatedly in subsequent lessons, you may want to cover them with transparent Con-Tact™ paper or laminate them.
5. Arrange the materials in a two-part distribution center, placing the Ping-Pong balls, plastic spoons, and wood blocks in the plastic cups. Figure 8-1 illustrates one way to set up the materials.

Figure 8-1

Distribution center



Procedure

1. Ask students to review the strategies they used in the last lesson to compare objects. If some students placed objects in serial order at that time, encourage them to describe the approaches they used.
2. Have one student from each pair collect the four objects and two sheets of writing paper from the distribution center. Ask students to hold each of the objects and then to predict a serial order from lightest to heaviest.
3. Have students write their predictions for the serial order of the objects on a sheet of paper.
4. Ask students to collect the equal-arm balances and clay. Give them a few minutes to equilibrate the balances.
5. Now have students use the equal-arm balance to compare the four objects and to arrange them in serial order.

Figure 8-2

Predicting a serial order



6. If some students are not sure how to proceed, encourage them to talk with other students about their strategies. You also can ask prompting questions, such as “What do you know about the object if the pail moves down?” or “How can you use what you observe about the two pails to decide which object is heavier?” Figure 8-3 shows one student’s drawing of the sequence of comparisons he made.
7. Once students have finished, ask them to place the objects on their desks from left to right, beginning with the lightest object, in the serial order they have determined.

Final Activities

1. Ask students to return their balances to the distribution center and to pick up the scissors, pieces of masking tape, strips of newsprint, and copies of the blackline master **The Four Objects**.
2. Have students cut out the pictures. Then have them use the masking tape to attach the pictures left to right, from lightest to heaviest, to the strip of newsprint, as shown in Figure 8-4. You may want to let students know that they will need to move their pictures in the next lesson.
3. After students have affixed the cutouts to the strips, ask them to write their names on the strips. Then have them return all their materials except the strips to the distribution center.

4. Have students describe the order of the objects on their strips. Then ask them to discuss how their results are different from or the same as their predictions. The following questions may help students think about and verbalize the steps they took to compare the objects:

- When you decided what object was the lightest, what was in the other pail?
- How did you decide which object was the heaviest?

Note: Students may decide on different serial orders for the objects. If this happens, ask them to discuss possible reasons for the differences.

5. During this discussion, use the sheet of newsprint titled “From Lightest to Heaviest” to show the serial order of the four objects. Attach your four cutouts to the newsprint using masking tape.

Management Tip: If your classroom has magnetic blackboards, you can use magnets to secure the cutouts.

6. Write binary symbols to show the relationship of each object to the one next to it, as illustrated in Figure 8-5. If students want to write these symbols on their strips, have them do so in pencil, because they will add two objects to the strips in Lesson 9.

7. Collect the strips and save them for Lesson 9.



Figure 8-5

Discussing the results of the comparisons

