

Most recent update: March 24, 2020

# RightStart™ Mathematics

## Corrections and Updates for Level A/Kindergarten Lessons and Worksheets, second edition

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LESSON/WORKSHEET	CHANGE DATE	CORRECTION OR UPDATE
Lesson 61	03/25/2019	In the first paragraph, the fourth sentence reads, "Second, ask her to enter the nubmer of new books Jessie received." Answer should be <b>[2]</b> , not [6].
Lesson 99	05/17/2017	If the child gets F wrong on the review, <b>review Lessons 95 and 96</b> , not Lesson 61. If the child gets H wrong, reivew Lessons <b>16, 18, and 19</b> .
Lesson 100	05/17/2017	If the child gets F wrong on the test, <b>review Lessons 95 and 96</b> , not Lesson 61. If the child gets H wrong, reivew Lessons <b>16, 18, and 19</b> .
Lesson 105	03/24/2020	This lesson uses materials that relies on exact weights. Unfortunately, there are frequent variances in the manufacturing process. We have modied the lesson to adjust for the potential errors; see the <b>PDF</b> . Also note that If the weight variances are too great, a portion of the lesson may skipped.
Lesson 116	08/20/2014	Worksheet 45 solution for #2: should be <b>3 rocks</b> , not 9 rocks.
Lesson 126	03/03/2017	Problem #7: should read "Have the child write the equation 4 minus 1 and include the <b>difference</b> ", not the sum.

# LESSON 105: MEASURING WITH GRAMS

## OBJECTIVES:

1. To introduce the term *gram*
2. To weigh some geometry solids in grams
3. To review indirectly that ten ones make one ten

## MATERIALS:

1. Centimeter cubes
2. Math balance and weights used as a scale
3. Geometric solids
4. AL Abacus

## ACTIVITIES FOR TEACHING:

**Warm-up.** Ask: How much is 16 plus 1? [17] How much is 16 minus 1? [15] How much is 11 plus 1? [12] How much is 11 minus 1? [10] How much is 14 plus 1? [15] How much is 14 minus 1? [13]

Ask: Which is longer, an inch or a centimeter? [inch] Which is shorter? [centimeter]

Ask the child how long is one edge of a tile? [1 inch] How long are two edges of a tile? [2 inches] How long are three edges of a tile, [3 inches] and how long are all four edges of a tile? [4 inches]

Ask: Can you always tell which of two things is heavier by just looking? [no] How can you find out? [by weighing]

**Weighing with the scale.** Give the child the centimeter cubes and one blue math balance weight. Ask: Which is heavier, one centimeter cube or one blue weight? [blue weight]

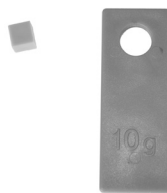
Tell her each centimeter cube weighs 1 *gram*. Tell her it takes 10 centimeter cubes to weigh the same as the blue weight.

Ask: What does 1 centimeter cube weigh? [1 gram] How much do 2 centimeter cubes weigh? [2 g] How much do 7 centimeter cubes weigh? [7 g] What does the blue weight weigh? [10 g] Tell her: Look closely at the blue weight. What do you see written on it? [10 g] Tell her that means *10 grams*.

Explain that we can also call the centimeter cube a 1-gram cube. We can also call the larger blue weight a 10-gram weight.

**A weighing problem.** Give the child at least 30 1-gram cubes. Ask her to solve the following problem:

With the hemisphere solid in the left cup, how many cubes are needed to make it balance?



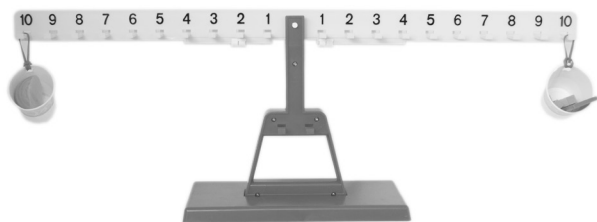
**A 1-gram cube and a 10-gram weight.**

## EXPLANATIONS:

Although this equivalency might be proven using the math balance, there is frequent variances in the manufacturing process and is often not equal.

The abbreviation for gram or grams is a lower case “g” without a period.

## ACTIVITIES FOR TEACHING CONTINUED:

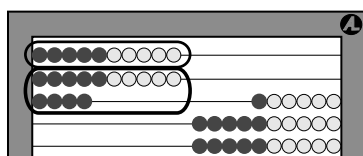
**Hemisphere in the left cup and weights in the right cup.**

Ask: What is the weight of the hemisphere? [Answer will vary.] Ask her to enter her answer on the abacus.

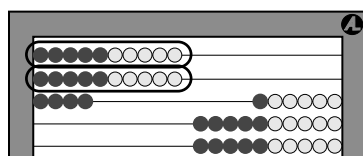
Empty the right cup and modify the problem:

Keep the hemisphere in the left cup. Put one 10-gram weight in the right cup. How many more 1-gram cubes do you need to make it balance?

Ask: What is the weight of everything in the right cup? [Answer will be similar to the previous answer.] Tell her to show the one 10-gram weight and the 1-gram cubes on the abacus. Ask: Where are the 1-gram cubes shown on the abacus? See the left figure below.



**Showing 10-gram and fourteen 1-gram weights.**



**Showing two 10-gram weights.**

Empty the right cup and modify the problem again:

Keep the hemisphere in the left cup, and put *two* 10-gram weights in the right cup. How many more cubes do you need to make it balance?

Ask: What is the total weight in the right cup? [Answer will be similar to the previous answers.] Ask her to show the two 10-gram weights and the 1-gram cubes on the abacus. See the right figure above.

**Weighing the cone.** Ask the child to weigh the cone, using as few weights as possible. If necessary, guide her to add 10-gram weights until she has too many. Then remove one weight and add 1-gram cubes until it balances.

If time remains, the child may want to weigh other solids or other objects in the room.

**In conclusion.** Ask the child to show the weight of the 10-gram weight on the abacus. [10] Ask her to show the weight of a the 1-gram cube on the abacus. [1] Ask: What is the weight of one 10-gram weight and four 1-gram cubes? [14] Show it on the abacus.

## EXPLANATIONS CONTINUED:

Although the weight of the hemisphere is about 20 to 24 g, given the density of the wood used for the shapes and the manufacturing discrepancies with the 10 g weights and 1 g centimeter cubes, the answers will vary.

The child need not count the centimeter cubes as she puts them into the cup. She can determine the quantity after removing them once the scale is balanced.

This is not a lesson on exact weights, rather it is to indirectly explore that ten ones make one ten and use of measurement.

If the weight variances are too great, this portion of the lesson may be skipped.

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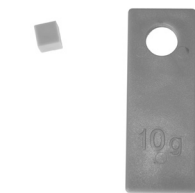
Ask: Can you always tell which of two things is heavier by just looking? [no] How can you find out? [by weighing]

**Weighing with the scale.** Give the children the centimeter cubes and a blue math balance weight. Ask: Which is heavier, a centimeter cube or a blue weight? [blue weight]

Tell them each centimeter cube weighs 1 *gram*. Tell them it takes 10 centimeter cubes to weigh the same as the blue weight.

Ask: What does 1 centimeter cube weigh? [1 gram] How much do 2 centimeter cubes weigh? [2 g] How much do 7 centimeter cubes weigh? [7 g] What does the blue weight weigh? [10 g] Tell them: Look closely at the blue weight. What do you see written on it? [10 g] Tell them that means *10 grams*.

Explain that we can call the centimeter cube a 1-gram cube. We can also call the larger blue weight a 10-gram weight.



**A 1-gram cube and a 10-gram weight.**

**A weighing problem.** Put the children in partners. Give the them at least 30 1-gram cubes. Ask them to solve the following problem:

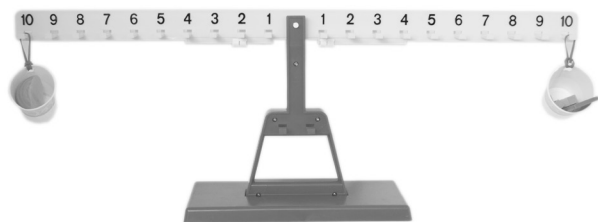
With the hemisphere solid in the left cup, how many cubes are needed to make it balance?

### EXPLANATIONS:

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## ACTIVITIES FOR TEACHING CONTINUED:

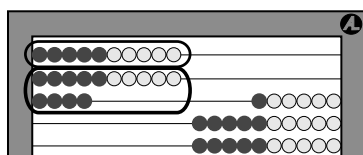
**Hemisphere in the left cup and weights in the right cup.**

Ask: What is the weight of the hemisphere? [Answers will vary.] Ask them to enter their answer on the abacus.

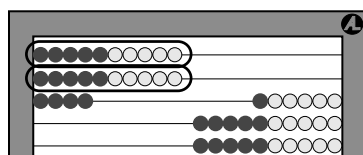
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Showing 10-gram and fourteen 1-gram weights.



Showing two 10-gram weights.

Empty the right cup and modify the problem again:

Keep the hemisphere solid in the left cup, and put *two* 10-gram weights in the right cup. How many more cubes do you need to make it balance?

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K.MD.1, K.MD.2