



Bad Date

Guide and Answer Key for Instructors



The *Bad Date* animation is available on iTunes U (search "Math Snacks") and at mathsnacks.org

Goals/Standards

The *Bad Date* video is about ratios and proportions. By watching the video and completing the activities in the *Learner Guide* will help students learn that:

- Ratios can represent part-whole or part-part relationships.
- Proportional relationships can be related to a common rate in direct variations.

Video Discussion

With your students, watch the 3-minute video *Bad Date* at <http://www.mathsnacks.com> and spend about 10 minutes discussing the big ideas or key points in the video. Ask:

- What do you think the video is about?
- What did you learn from it?
- Can you think of situations in which ratios are used to compare numbers?
- Why are ratios helpful in these situations?
- What are some different ways of expressing ratios e.g., 1:7, 1/7, or 7 times as many)? Can you think of situations in which one expression might be more appropriate to use than another?

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Bad Date

Learner Guide

Watch the video, *Bad Date*, and complete these activities. The video and an instructor guide are available on iTunes U (search "Math Snacks") and at mathsnacks.org

A ratio is a comparison of two numbers. In the *Bad Date* movie, Isabella spoke **one** word for every **seven** words that Mike spoke.

The ratio of her words to his words is one to seven or 1:7. We generally separate the two numbers in the ratio with a colon (:).

Talk! Talk! Talk! Talk! Talk! Talk! Talk! Talk! Talk! Talk! Talk! Talk! Talk! Talk! Talk!

On her second date, Isabella spoke 36 words, and Diego spoke only 6, for a 6:1 ratio. In other words, she spoke six times as many words.

Here are examples of 6:1 ratios.

Isabella's words	Diego's Words
36 words	6 words
18 words	3 words
6 words	1 word

1. Use the ratio 6:1 to find the answers.

A. If Isabella spoke 12 words, how many words did Diego speak?	12 words
B. If Diego spoke 20 words, how many words did Isabella speak?	20 words
C. What if she spoke 60 words?	60 words
D. What if he spoke 32 words?	32 words

Stuck? Draw a picture of Isabella and Diego to show how many words each says on a 6:1 ratio.

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2. Find the ratio 5:7!

Brother's TV Time	Sister's TV Time
5	7

A. If the brother watched 10 hours of TV over the weekend, how much TV did the sister watch?

B. If the brother watched 1 hour of TV, how much TV did the sister watch?

C. If the sister watched 10.5 hours, how much TV did the brother watch?

My brother watches five hours of TV for every seven hours that I watch.

It's a ratio of 5 to 7 (5:7).

There are lots of situations in which 1:1 ratios are desirable – or even required. For example, in a basketball game, each team has 5 players on the court, so the ratio of players is 5:5 or 1:1. Likewise, in a football game, each team fields 11 players, so the ratio is 1:1.

3. Can you think of three other situations in which a 1:1 ratio is desirable?

A. _____

B. _____

C. _____

4. Can you think of three situations in which a 1:1 ratio is not desirable or possible?

A. _____

B. _____

C. _____

There are lots of situations in which 1:1 ratios are not desirable or possible. For example, in a bus, there could be 1 bus driver for 44 students, so the ratio of bus drivers to students would be 1:44.

At the end of the last date, the ratio of words was 57:56.

5. Why did Harvey say "bread"?

57 : 56
Isabella : Harvey

A. If Harvey had not said "bread," would Isabella still consider it a one-to-one ratio?

B. What other ratios would be acceptable to Isabella to consider the date successful?

Vocabulary

Proportion relationships, ratios, part-whole, part-part, one-to-one

Bonus Activities

Select one or more of these to do with your students after they've completed the *Learner Guide*.

1. Ask students to imagine that Isabella had a date during which she spoke 64 words and her date spoke 512 words. Ask them to draw a picture, chart or graph that illustrates the ratio of her words to his words.
2. Isabella complains that she has had a lot of bad dates. Her idea of a bad date is someone who talks a lot more than she does or a lot less. Ask students to imagine themselves on a bad date and write a funny story or a video script about it. They should use ratios to help explain what was so bad about it.

For example, maybe a student's idea of a bad date is someone who eats a lot more or a lot less than he or she does. A student may not consider a 1:1 ratio ideal!

3. Ask students to make up five of their own ratio questions about text messaging. For example, if Derek sent 480 text messages last month and Angelina sent 464, what is the ratio of Derek's messages to Angelina's? Ask them to make an answer key on a separate sheet of paper. If there are several students in the class, they may exchange and answer each other's questions.
4. Complete the following table and have students calculate the ratios.

Question	Yes	No	Ratio Yes:No	Ratio No:Yes
a. Are you an only child?				
b. Are you wearing red today?				
c. Do you understand what a ratio is?				

5. Student created surveys. Divide students into teams of 2 or 3.
 - Have students create a 3 question survey with yes/no questions.
 - Have students ask these questions to their classmates and other students in the school.
 - Have students create a table of their information similar to the table in #4.
 - Have students calculate the ratios of the answers for each question and explain them verbally, in pictures or in writing table similar to the one in #4 with answers to questions they create for themselves.
 - Have them calculate the appropriate ratios. Remember to remind them during the discussion how important it is to LABEL their ratios appropriately.

NOTE: If you would like to see additional activities for Ratio, please refer to the Teacher Guide for Atlantean Dodgeball.

Page 1 Answer Key

1. On her second date, Isabella spoke 36 words, and Diego spoke only 6, for a 6:1 ratio. In other words, she spoke six times as many words.

Find the ratio 6:1!

Isabella	Diego
6 words	1 word
a. If Isabella spoke 12 words , how many words did Diego speak?	
12 words	<i>Answer: 2 words</i>
b. If Diego spoke 20 words , how many words did Isabella speak?	
<i>Answer: 120 words</i>	20 words
c. What if she spoke 60 words ?	
60 words	<i>Answer: 10 words</i>
d. What if he spoke 32 words ?	
<i>Answer: 192 words</i>	32 words

Page 2 Answer Key

2. "My brother watches five hours of TV for every seven hours that I watch. It's a ratio of 5 to 7 (5:7)."

Find the ratio 5:7!

Brother's TV Time	Sister's TV Time
5	7
a. If the brother watched 10 hours of TV, how much did the sister watch?	
<i>Answer: 10 hours</i>	<i>Answer: 14 hours</i>
b. If the brother watched 1 hour of TV, how much did the sister watch?	
<i>Answer: 1 hour</i>	<i>Answer: 1 hr, 24 min; or 84 min.</i>
c. If the sister watched 10.5 hours of TV, how much did the brother watch?	
<i>Answer: 7.5 hours; or 7 hours, 30 min.</i>	<i>Answer: 10.5 hours</i>

NOTE: Please offer some guidance for 2b. and 2c. because they must take into consideration the conversion from hours to minutes before doing the ratio. If this is too difficult, do this as a large group.

3. There are lots of situations in which 1:1 ratios are desirable – or even required. For example, in a basketball game, each team has 5 players on the court, so the ratio of players is 5:5 or 1:1. Likewise, in a football game, each team fields 11 players, so the ratio is 1:1.

Can you think of three other situations in which a 1:1 ratio is desirable?

Answers will vary. Possible answers could include: marriage or dating, a party with boys to girls, piece of dessert for each person eating at a party.

Instructors: There are many possible answers. Ask students to explain why they feel a 1:1 ratio is desirable for the situations they choose.

4. There are lots of situations in which 1:1 ratios are not desirable or possible. For example, in a bus, there could be 1 bus driver for 44 students, so the ratio of bus drivers to students is 1:44.

Can you think of three other situations in which a 1:1 ratio is not desirable or possible?

Answers will vary. Possible answers could include: referees to players, slices of pizza to hungry kids, teachers to students in a classroom

Instructors: There are many possible answers. Ask students to explain why they feel a 1:1 ratio is desirable for the situations they choose.

5. At the end of the last date, the ratio of words was 57:56.

Why did Harvey say “bread”?

Answer: Harvey said “bread” to make the ratio exactly 57:57, or 1:1.

- a. If he had not said “bread,” would Isabella still consider it a one-to-one ratio? Explain.

Answer: Yes. The ratio is close enough to 1:1 for this situation.

- b. What other ratios would be acceptable to Isabella to consider the date successful? Explain.

Answer: Any ratio that closely resembles a 1:1 ratio would be acceptable. For example, 42:35, when rounded, is close to 40:40, a 1:1 ratio. In some situations, estimation is acceptable as long as students can justify answers or it is reasonable mathematically.