



On Core Lessons for Common Core Math



**Using the Whiteboard**

Use the table of contents to go to specific sections of the lesson, or, tap **Next** to go to the first section of the lesson.

Teaching the Math

Preview the *Essential Question*: How can you compare decimals?

Common Core Standards for Mathematical Content

CC.4.NF.7 Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify conclusions, e.g., by using a visual model.

Common Core Standards for Mathematical Practice

CC.K–12.MP.2 Reason abstractly and quantitatively.

CC.K–12.MP.3 Construct viable arguments and critique the reasoning of others.

Navigating the *SMART Notebook* file

	Home	Return to the Main Menu.		Example	View a sample problem.
	Teacher Notes	Open the Teacher Notes PDF.		Answer	Show the correct answer to a problem.
	Previous	Go to the previous page.		Try Another	Generate another problem for extra practice.
	Next	Go to the next page.		SMART Response Question	Indicates the question is compatible with a <i>SMART Response</i> interactive Response system.
	Action Arrow	Reveal hidden content.			
	Try This	Reveal additional problems. Tap again to return to the previous page.		Workspace	Reveal additional content for the activity. Tap again to return to the previous page.

Tips**Clear or reset the screen**

To reset the screen, tap **Edit > Reset Page** or tap the **Reset Page** button if it is on the toolbar.

Add tools and functions to your *SMART Notebook* toolbar or floating palette

Tap the **Customize** button in the toolbar or floating palette, and then drag the tool to the toolbar or floating palette.

**Using the Whiteboard**

- Discuss the problem with students.
- Have a volunteer use the **Highlighter Tool** to shade the model and the **Pen** to complete the equation.

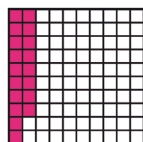
Teaching the Math

After students have read the problem, discuss different strategies they could use to solve the problem. Remind them that decimals and fractions are related, so they can use strategies to compare decimals that are similar to those used to compare fractions.

Ask: How can you tell which decimal is less using the models? **The model with fewer shaded columns shows the lesser number.**

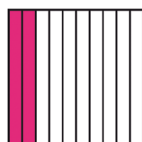
Answer Key

Shade 0.18.



0.18

Shade 0.2.



0.2



**Using the Whiteboard**

- Pull out the Problem tab to remind students of the problem.
- Tap **Think** to reveal a helpful hint.
- Ask a volunteer to use the **Pen** to identify the points on the number line and complete the sentence.
- Tap the **Action Arrow** to reveal another way to solve the problem.
- Ask a volunteer to use the **Pen** to complete the sentences and equations.
- Tap **Math Talk** to reveal a discussion question.

Teaching the Math

Explain that a number line can also be used to compare decimals. Just as with whole numbers and fractions, a decimal closer to 0 is less than another decimal. After working through the number line with students, remind them that they have used benchmark fractions to compare fractions.

Ask: How do the benchmarks help you compare the decimals? **Possible answer:** I know 0.4 is less than 0.5 and 0.78 is close to 1.0, so I can tell that 0.4 is less than 0.78.

Before tapping the **Action Arrow**, review the size of a tenth and a hundredth using a decimal model. Discuss with students that when comparing decimal amounts, the comparison is only valid when the decimals represent parts of the same-size wholes.

Answer Key

0.18 is closer to 0, so $0.18 < 0.2$.

0.18 is 18 hundredths.

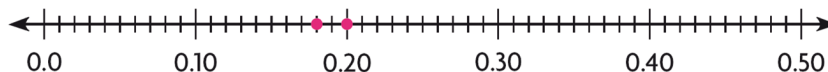
0.20 is 2 tenths, which is equivalent to 20 hundredths.

18 hundredths $<$ 20 hundredths, so $0.18 < 0.2$.

So, more of the park is covered by paved walkways.

Math Talk

Possible explanation: 0.18 has 1 tenth and 0.2 has 2 tenths. The number of tenths in 0.18 is less than the number of tenths in 0.2.



**Using the Whiteboard**

- Discuss the problem with students.
- Tap the **Action Arrow** and ask a volunteer to use the **Highlighter Tool** to shade the model and the **Pen** to complete the sentence.
- Ask another volunteer to use the **Pen** to complete the table and the sentence.
- Tap the **Try This** button to reveal another problem.

Teaching the Math

Ask: How do the models show which decimal is greater? **The model with the greater amount shaded shows the greater decimal.**

Ask: How does the place-value chart help you compare the money amounts?

Possible answer: I can start by comparing the digits in the place-value position farthest to the left, the ones. Since the ones digits are the same, I can compare the digits in the tenths place. $5 > 0$, so 0.5 is greater than 0.05.

Try This

Have students shade the tenths models to represent each fraction. Students should use their models to compare the decimals.

Ask: Why do you need to use more than one tenths model to represent 1.3?

Possible answer: I need to shade 1 whole tenths model to represent 1, and I need the second tenths model to represent 0.3 or 3 tenths.

Common Errors

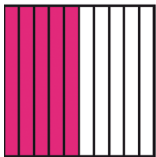
Error Students do not compare equal-sized parts when comparing decimals.

Example Students compare 5 tenths and 18 hundredths and conclude that $0.5 < 0.18$.

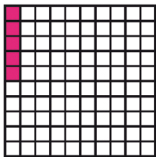
Springboard to Learning Give student decimals models and have them shade to show each decimal. Elicit from students that $0.5 = 0.50$ and 50 hundredths is greater than 18 hundredths, not less.

Answer Key

Tim



Sienna



Ones	.	Tenths	Hundredths
0	.	5	
0	.	0	5

← Tim
← Sienna

Think: The digits in the ones place are the same. Compare the digits in the tenths place.

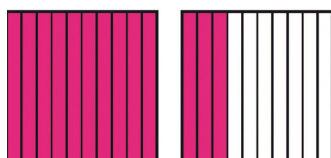
5 tenths $>$ 0 tenths, so $0.5 > 0.05$.

So, Tim has more money.

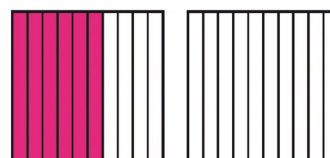
Try This

$$1.3 > 0.6$$

Shade to model 1.3.



Shade to model 0.6.

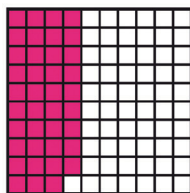




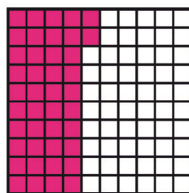
Using the Whiteboard

- Discuss the problem with students.
- Have a volunteer use the **Highlighter Tool** to shade the model.
- Ask students to solve the problem.

Answer Key



0.39



0.42

$0.39 < 0.42$

**Using the Whiteboard**

- Discuss the problem with students.
- Ask a volunteer to use the **Pen** to fill in the place-value chart and complete the equation.
- Tap **Try Another!** to reveal an additional problem.
- Repeat the above steps with two more problems.

Answer Key

$0.26 > 0.23$

Ones	.	Tenths	Hundredths
0	.	2	6
0	.	2	3

$0.7 > 0.54$

Ones	.	Tenths	Hundredths
0	.	7	
0	.	5	4

$4.5 > 2.89$

Ones	.	Tenths	Hundredths
4	.	5	
2	.	8	9

**Using the Whiteboard**

- Discuss the problems with students.
- Have a volunteer use the **Pen** to complete the first equation.
- Invite two new volunteers to complete the two remaining equations.
- Tap on the **Action Arrow** to reveal another set of problems.
- Repeat the above steps to solve the three remaining problems.

Answer Key

$0.9 > 0.81$ $1.06 > 0.6$ $2.61 < 3.29$ $0.38 < 0.83$ $1.11 < 1.41$ $0.8 = 0.80$

**Using the Whiteboard**

- Read the instructions to students.
- Ask a volunteer use the **Eraser** to reveal a problem.
- Have the volunteer use the **Pen** to write the correct symbol.
- Repeat previous steps for the two remaining problems.

Teaching the Math

These exercises require students to use higher order thinking skills to rename a fraction as a decimal or a decimal as a fraction in order to compare amounts written in different forms.

Answer Key

$$0.30 = \frac{3}{10} \qquad \frac{4}{100} < 0.2 \qquad \frac{1}{8} < 0.8$$

**Using the Whiteboard**

- Read the question to the students.
- Ask students to solve the problem.
- If available, have students use their *SMART Response* remotes to answer.
- If installed, click the *SMART Response* tab, and then start the question to begin voting.
- Students may also use the **Pen** to circle the answer.
- Tap **Answer** to reveal the correct answer.

Teaching the Math

Ask: What are you asked to find? **The time of the runner who finished first.**

Ask: What do you need to do to find the answer? **Possible answer: Use a place-value chart to compare the times to find the time that is less.**

Ask: Look back. Does your answer make sense? Explain. **Yes. The time of the runner who finished first is the lesser time of the two. Since $4.83 < 4.89$, then 4.83 minutes is the time of the runner who finished first.**

Answer Key

C) 4.83 minutes

**Using the Whiteboard**

- Read aloud the *Essential Question*: How can you compare decimals?
- Instruct a volunteer to use the **Pen** to write his or her answer.
- Pull out the Answer tab to reveal the answer.

Answer Key

Essential Question: Possible answer: I can use a decimal model to compare decimals by shading grids to show the two decimals and then determining how the decimals compare.

Copyright © 2013 by Houghton Mifflin Harcourt Publishing Company

All rights reserved. No part of the material protected by this copyright may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, recording, broadcasting or by any other information storage and retrieval system, without written permission of the copyright owner unless such copying is expressly permitted by federal copyright law.

Only those pages that are specifically enabled by the program and indicated by the presence of the print icon may be printed and reproduced in classroom quantities by individual teachers using the corresponding student's textbook or kit as the major vehicle for regular classroom instruction.

Common Core State Standards © Copyright 2010. National Governors Association Center for Best Practices and Council of Chief State School Officers. All rights reserved.

This product is not sponsored or endorsed by the Common Core State Standards Initiative of the National Governors Association Center for Best Practices and the Council of Chief State School Officers.

HOUGHTON MIFFLIN HARCOURT and the HMH Logo are trademarks and service marks of Houghton Mifflin Harcourt Publishing Company. You shall not display, disparage, dilute or taint Houghton Mifflin Harcourt trademarks and service marks or use any confusingly similar marks, or use Houghton Mifflin Harcourt marks in such a way that would misrepresent the identity of the owner. Any permitted use of Houghton Mifflin Harcourt trademarks and service marks inures to the benefit of Houghton Mifflin Harcourt Publishing Company.

All other trademarks, service marks or registered trademarks appearing on Houghton Mifflin Harcourt Publishing Company websites are the trademarks or service marks of their respective owners.