

# Fourth Grade: Benchmark 2

## Parent Handbook



*This handbook will help your child review material learned this quarter, and will help them prepare for their second Benchmark Test. Please allow your child to work independently through the material, and then you can check their work using the answer key in the back of the handbook. If you have any questions or concerns about this material, please contact your child's teacher.*

*Thank you for your support!*

# Fourth Grade Essential Math Standards

## Learning Objective # 1:

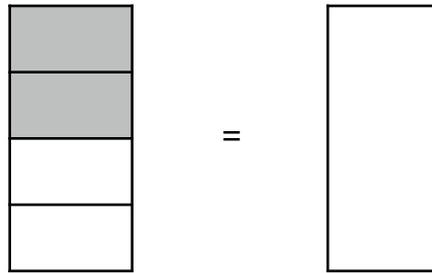


“ I can explain why one fraction is equivalent to another by using visual models.”

### Practice:

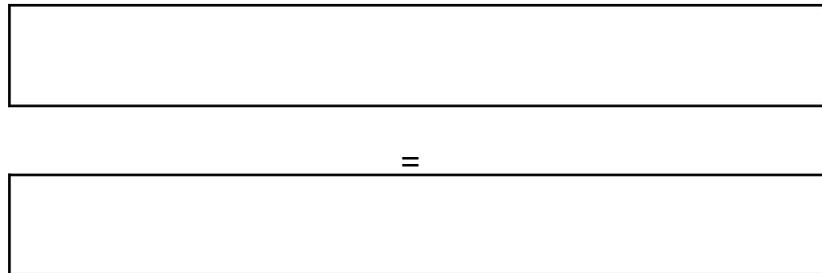
1. Which fraction is equivalent to  $\frac{2}{4}$ ? Use the model below to show how many eighths are equal to  $\frac{2}{4}$ .

- a.  $\frac{2}{8}$
- b.  $\frac{3}{8}$
- c.  $\frac{4}{8}$
- d.  $\frac{5}{8}$



2. Which fraction below is equivalent to  $\frac{6}{12}$ ? Use the models below to show the fraction  $\frac{6}{12}$  and an equivalent fraction to  $\frac{6}{12}$ .

- a.  $\frac{1}{2}$
- b.  $\frac{2}{6}$
- c.  $\frac{3}{5}$
- d.  $\frac{8}{15}$



## Learning Objective # 2:

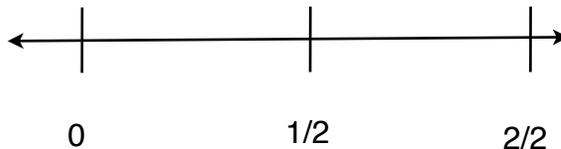


“ I can compare two fractions with different numerators and different denominators.”

**Practice:**

3. Compare the fractions  $\frac{3}{5}$  and  $\frac{1}{4}$ . Using the number line below, which answer choice is true?

- a.  $\frac{3}{5} = \frac{1}{4}$
- b.  $\frac{3}{5} > \frac{1}{4}$
- c.  $\frac{3}{5} < \frac{1}{4}$



4. Which comparison is true? Draw a model to justify your answer.

- a.  $\frac{5}{10} < \frac{7}{10} < \frac{9}{10}$
- b.  $\frac{5}{10} < \frac{7}{10} > \frac{9}{10}$
- c.  $\frac{2}{10} < \frac{6}{10} > \frac{8}{10}$
- d.  $\frac{2}{10} = \frac{6}{10} < \frac{8}{10}$

5. Which comparison is true? Draw a model to justify your answer.

- a.  $\frac{4}{6} = \frac{1}{2} = \frac{5}{6}$
- b.  $\frac{4}{6} = \frac{1}{2} > \frac{5}{6}$
- c.  $\frac{4}{6} < \frac{1}{2} < \frac{5}{6}$
- d.  $\frac{4}{6} > \frac{1}{2} < \frac{5}{6}$

**Learning Objective # 3:**



“I can separate a fraction in more than one way by using an equation.”

**Practice:**

6. Which of the fractions is **NOT** correctly separated?

- a.  $7/8 = 2/8 + 2/8 + 3/8$
- b.  $7/8 = 1/8 + 1/8 + 2/8 + 3/8$
- c.  $7/8 = 1/8 + 2/8 + 3/8$
- d.  $7/8 = 1/8 + 2/8 + 4/8$

7. Which mixed number is correctly separated into parts?

- a.  $2\ 5/6 = 1 + 1 + 5/6 = 6/6 + 1/6 + 1/6 + 1/6 + 1/6 + 1/6$
- b.  $3\ 1/2 = 1 + 1 + 1/2 = 2/2 + 2/2 + 1/2$
- c.  $1\ 4/5 = 1 + 4/5 = 4/4 + 1/5 + 1/5 + 1/5 + 1/5$
- d.  $2\ 3/4 = 1 + 1 + 3/4 = 4/4 + 4/4 + 1/4 + 1/4$

***Learning Objective # 4:***



“I can add and subtract mixed numbers with like denominators. I can solve word problems by adding and subtracting mixed numbers with like denominators.”

***Practice:***

8. Phil and Chris ate 2 pizzas. They ate  $6/8$  of the pepperoni pizza and  $5/8$  of the cheese pizza. What fraction of pizza is left over? Draw a picture to justify your answer.

- a.  $5/8$  of pizza left over
- b.  $4/8$  of pizza left over
- c.  $3/8$  of pizza left over
- d.  $6/8$  of pizza left over

9. Tammy and Dawn went together to buy some fabric. Tammy bought  $3\frac{2}{7}$  yards of fabric and Dawn bought  $6\frac{4}{7}$  yards of fabric. Compared to her friend, how much more fabric did Dawn buy than Tammy?

- a.  $3\frac{3}{7}$  yards more
- b.  $3\frac{2}{7}$  yards more
- c. 3 yards more
- d.  $4\frac{1}{7}$  yards more

***Learning Objective # 5:***



“I can multiply a fraction by a whole number. I can solve word problems involving multiplication of fractions by whole numbers.”

***Practice:***

10. Solve for:  **$5 \times \frac{7}{12}$**

- a.  $\frac{28}{12} = 2\frac{4}{12}$
- b.  $\frac{32}{12} = 2\frac{8}{12}$
- c.  $\frac{30}{12} = 2\frac{6}{12}$
- d.  $\frac{35}{12} = 2\frac{11}{12}$

11. Jerry rode his bicycle  $\frac{9}{10}$  of a mile on Saturday. On Sunday, he walked 6 times farther. How far did Jerry walk on Sunday?

- a.  $5\frac{3}{10}$  miles
- b.  $5\frac{4}{10}$  miles
- c.  $6\frac{2}{10}$  miles
- d.  $6\frac{3}{10}$  miles

**Learning Objective # 6:**



**“I can add fractions with unlike denominators of 10 and 100.”**

**Practice:**

12. Solve the problem:  **$3/10 + 54/100$**

- a.  $80/100$
- b.  $57/110$
- c.  $57/100$
- d.  $84/100$

13. Student Council was voting on which theme to have for the school dance.  $4/10$  of the group wanted a sports theme and  $5/100$  voted for superheroes. How many students voted for both sports theme and superheroes?

- a.  $45/110$
- b.  $9/10$
- c.  $45/100$
- d.  $9/100$

**Learning Objective # 7:**



**“I can read, write, and connect models of fractions and decimals.”**

**Practice:**

14. What are two ways of writing 0.6 as a fraction?

- a.  $6/10$  and  $60/100$
- b.  $60/10$  and  $60/100$
- c.  $6/10$  and  $6/100$

15. What is another way to write the number  $40/100$ ?

- a. 0.4
- b. 0.04
- c. 4.0

**Learning Objective #8:**

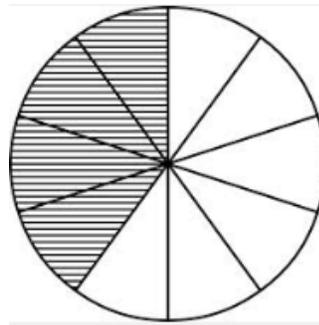


**“I can compare two decimals to the thousandths.”**

**Practice:**

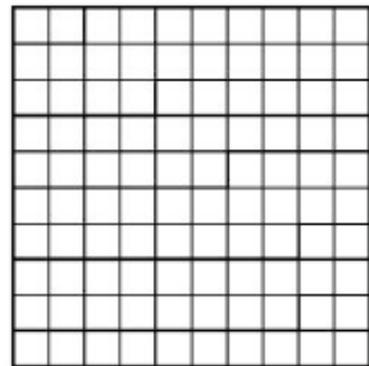
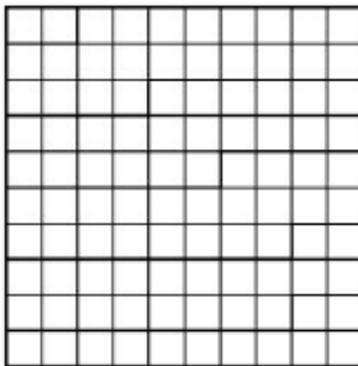
16. Which decimal would be less than the shaded part of the pie?

- a. 0.4
- b. 0.003
- c. 0.66
- d. 0.9



17. Shade in 0.09 on the first grid and 0.9 on the second grid. Then compare the decimals. Which decimal is greater?

- a. 0.009
- b. 0.09
- c. 0.9



***Learning Objective #9:***



**“I can find all the factor pairs, multiples, prime numbers, and composite numbers for whole numbers up to 100.”**

***Practice:***

18. Find all the factors for 45.

- a. 1, 3, 5, 8, 16, 45
- b. 1, 2, 4, 5, 22, 45
- c. 1, 3, 5, 9, 15, 45

19. Which list shows multiples of 12?

- a. 12, 24, 36, 45, 57, 70
- b. 24, 36, 48, 60, 72, 84
- c. 12, 22, 32, 42, 52, 62

## Benchmark 2 Essential Math Vocabulary

- \* **decimal**: a part of a whole number.
- \* **fraction**: a part of a whole number.
- \* **numerator**: the number above the fraction line which shows the parts taken from the whole
- \* **denominator**: the number below the fraction line which shows the whole amount.
- \* **benchmark fractions**: commonly used fractions that you can judge other numbers against.
- \* **improper fraction**: a fraction in which the numerator is larger than the denominator.
- \* **equivalent fractions**: fractions that are equal.
- \* **Greatest Common Factor (GCF)**: the greatest factor that divides two numbers.
- \* **Least Common Multiple (LCM)**: the lowest quantity that is a multiple of two or more quantities.
- \* **visual fraction model**: a model demonstrating the part of the whole.
- \* **mixed number**: a whole number and a fraction.
- \* **multiple**: a number that can be divided by another number without a remainder
- \* **sum**: the answer to an addition problem.
- \* **decomposition**: breaking apart a fraction into its equal units
- \* **factors**: two numbers that, when multiplied together, equal another number or a product.
- \* **prime number**: a number greater than 1 that has only 2 factors, 1 and itself.
- \* **composite number**: a number that has more than 2 factors.
- \* **whole number**: a positive number that doesn't include a fraction or decimal.
- \* **tenths**: 1 of 10 equal parts.
- \* **hundredths**: 1 of 100 equal parts.

## Math Answer Key

1.C

2.A

3.B

4.A

5.D

6.C

7.C

8.A

9.B

10.D

11.B

12. D

13. C

14. A

15. A

16. B

17. C

18. C

19. B

# Fourth Grade Essential Reading Standards

## *Learning Objective # 1:*



**“I can refer to details and examples from an expository text to state an inference.”**

## *Practice:*

Read the following passage:

### Black Holes

How many things can you see in the night sky? A lot! On a clear night you might see the Moon, some planets, and thousands of sparkling stars. You can see even more with a telescope. You might see stars where before you only saw dark space. You might see that many stars look larger than others. You might see that some stars that look white are really red or blue. With bigger and bigger telescopes you can see more and more objects in the sky. And you can see those objects in more and more detail.

But scientists believe there are some things in the sky that we will never see. We won't see them with the biggest telescope in the world, on the clearest night of the year. That's because they're invisible. They're the mysterious dead stars called black holes.

You might find it hard to imagine that stars die. After all, our Sun is a star. Year after year we see it up in the sky, burning brightly, giving us heat and light. The Sun certainly doesn't seem to be getting old or weak. But stars do burn out and die after billions of years.

As a star's gases burn, they give off light and heat. But when the gas runs out, the star stops burning and begins to die. As the star cools, the outer layers of the star pull in toward the center. The star squashes into a smaller and smaller ball. If the star was very small, the star ends up as a cold, dark ball called a black dwarf. If the star was very big, it keeps squashing inward until it's packed together tighter than anything in the universe.

Imagine if the Earth were crushed until it was the size of a tiny marble. That's how tightly this dead star, a black hole, is packed. What pulls the star in toward its cen-

ter with such power? It's the same force that pulls you down when you jump — the force called gravity. A black hole is so tightly packed that its gravity sucks in everything — even light. The light from a black hole can never come back to your eyes. That's why you see nothing but blackness.

So the next time you stare up at the night sky, remember: there's more in the sky than meets the eye! Scattered in the silent darkness are black holes — the great mystery of space.

1. What inference can be made from “Black Holes”?
  - a. a star is scattered into space
  - b. Black holes are all over our night sky.
  - c. The sun will eventually burn out just like the other stars that are now a black hole.
  - d. A new star is born, forming a black hole
  
2. What detail from the passage helps support your answer?
  - a. Year after year we see it up in the sky, burning brightly, giving us heat and light. The Sun certainly doesn't seem to be getting old or weak.
  - b. You might find it hard to imagine that stars die. After all, our Sun is a star. But when the gas runs out, the star stops burning and begins to die.
  - c. Scattered in the silent darkness are black holes — the great mystery of space.
  - d. Imagine if the Earth were crushed until it was the size of a tiny marble. That's how tightly this dead star, a black hole, is packed.

## Learning Objective # 2:



**“I can compare and contrast a firsthand and secondhand account of an event or topic.”**

**Read the following passages below:**

### **The Oregon Trail**

In 1843, thousands of people began traveling across America to the open lands of the West. Most of these people followed a path known as the Oregon Trail. Pioneers set out from towns along the Missouri River in the Midwest. They made a 2,000-mile trek to their new homes in California and Oregon. Some traveled in covered wagons. Others were on foot or horseback. The route was filled with danger and hardship.

**from *Across the Plains in 1844***

August 1st we nooned in a beautiful grove on the north side of the Platte [River]. We had by this time got used to climbing in and out of the wagon when in motion. When performing this feat that afternoon, my dress caught on an axle helve. I was thrown under the wagon wheel, which passed over and badly crushed my leg before my father could stop the team. He picked me up and saw the extent of the injury ... The news soon spread along the train and a halt was called. A surgeon was found and the limb set ...

3. Which text was a firsthand account?

- a. "The Oregon Trail"
- b. *Across the Plains in 1844*

4. List one example on how the accounts are similar and different?

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***Learning Objective #3:***

- *"I can identify the main idea and supporting details in informational (expository) text. I can summarize the text."*

***Practice***

Read the passage and answer questions #5 & 6.

## Sharks and Whales

Sharks and whales are both aquatic animals that live in the ocean, however they are vastly different. Sharks are a type of fish. Sharks are amazing fish that have been around since long before the dinosaurs existed. They live in waters all over the world, in every ocean, and even in some rivers and lakes. Unlike bony fish, sharks have no bones; their skeleton is made of cartilage, which is a tough, fibrous substance, not nearly as hard as bone. Sharks also have no swim bladder (unlike bony fish).

Whales are large, magnificent, intelligent, aquatic mammals. They breathe air through blowhole(s) into lungs (unlike fish who breathe using gills). Whales have sleek, streamlined bodies that move easily through the water. They are the only mammals, other than manatees (seacows), that live their entire lives in the water, and the only mammals that have adapted to life in the open oceans.

5. What is the main idea of this passage?
  - a. Sharks and whales are very different from each other.
  - b. Sharks and whales both live in the ocean.
  - c. Sharks and whales are both mammals.
  
6. What is a key detail that helps support the main idea?
  - a. Whales are the only mammals to have adapted to life in the open ocean.
  - b. Sharks are a type of fish, where as whales are mammals.
  - c. Sharks have been around since long before dinosaurs.

### ***Learning Objective #4:***

- *"I can describe the structure elements of informational (expository) text."*

### ***Practice:***

Li Bing and the Flooding  
By: Vinnie Rotondaro

A very long time ago there were people who lived along a river in China. The river was named the Min River.



The flood water can be very dangerous.

There was a problem with the Min River. The people who lived along it were scared of it because it would overflow. This happened once a year, every year. When the river overflowed water would flood the people's homes and everything would get wet. This was a very bad thing for the people who lived along the Min River. It was a big problem. So some of the people got together and started to think about how they could fix it.

Eventually the governor of the people got involved. His name was Li Bing and he was very smart. Li Bing investigated the problem. When someone investigates a problem it means that they look for the cause of the problem. The cause of a problem is the place where the problem starts.

Li Bing found out that the problem of the flooding river started up in the mountains. The tops of the mountains were very high up in the sky, where it was very cold. When it was wintertime, it would get so cold that the tops of the mountains would become covered in snow. When springtime came, all the snow would melt. When snow melts it means it turns into water. The problem was that the melted water would fall down the mountain and go into the Min River. This is why it would overflow and flood people's homes.

Li Bing knew that the melting snow was the cause of the flooding. But he also knew that he couldn't stop the snow from melting. So he started to think about other ways that he could fix the problem. Then Li Bing had a great idea. He realized that the best way to solve the problem would be to turn it into an opportunity. An opportunity is a chance for something good to happen.

Away from the river there was a flat piece of land that had its own problem. It didn't have any water. It needed water. So Li Bing started thinking about how he

could get the extra water that was bad for the people who lived along the Min River to the flat plain of land that needed water to grow plants.

Li Bing got a bunch of workers together and created a levee in the Min River. A levee is a big wall that people build to stop water from coming into one place and make it go to another place.



Li Bing and his workers made the levee out of bamboo and stones. It took him and his men four years to build. When the levee was done, the water stopped flooding the homes of the people who lived along the Min River and started going into the land that was flat and needed water. Now the people who lived along the river didn't have to worry about the river flooding and plants began to grow in the flat land.

7. What is the overall text structure of the passage?
- a. Cause and Effect
  - b. Problem and Solution
  - c. Comparison

Read the passage and answer questions #8 & 9.

### When Water Moves Sediments

Erosion is any process or force that moves sediments to new locations. Wind and water both cause erosion. The tug of gravity pulls sediments out of wind and water. Flowing water picks up sediments and carries them downhill to new locations. A summer rain can wash fine sediments onto sidewalks and into gutters. A rushing mountain stream can sweep small stones into a valley. A flooded river can surge along with enough force to move large rocks many miles down stream.

As moving water slows, sediments sink to the bottom of the river or stream. The heaviest sediments are the first to be deposited. The finest sediments are the last. Layers of sediment accumulate at the mouths of rivers and on the bottoms of lakes. Vast layers of sediment are also deposited on the ocean floor over long periods of time. Like wind-deposited sediments, those laid down by water may someday be transformed into sedimentary rock.

Water doesn't have to be in its liquid state to erode sediments. Glaciers are enormous masses of ice found in polar regions and near the tops of tall mountains. Although ice is solid, glaciers do move. They flow-very, very slowly downhill. As countless tons of ice creep over land or down mountainsides, they push, drag, and carry eroded sediments along. Moving glaciers also create sediments as they grind against rocks beside or below them.

Glaciers are such powerful forces that they can carve huge U-shaped valleys through mountain ranges.

When glaciers melt, they deposit the sediments they have been carrying. About 20,000 years ago, glaciers covered large parts of North America, Europe, and Asia. As the climate warmed, the glaciers melted and retreated northward. They left behind massive deposits of sand, gravel, and silt, along with collections of rocks and boulders. You can still see these deposits as hills, mounds, and ridges on the landscape.



*Glaciers, like this one in Alaska, are powerful forces that can cause erosion.*

8. What is the structure of the text, "When Water Moves Sediments"?
- Cause and Effect
  - Problem and Solution
  - Sequencing

**Learning Objective #5:**

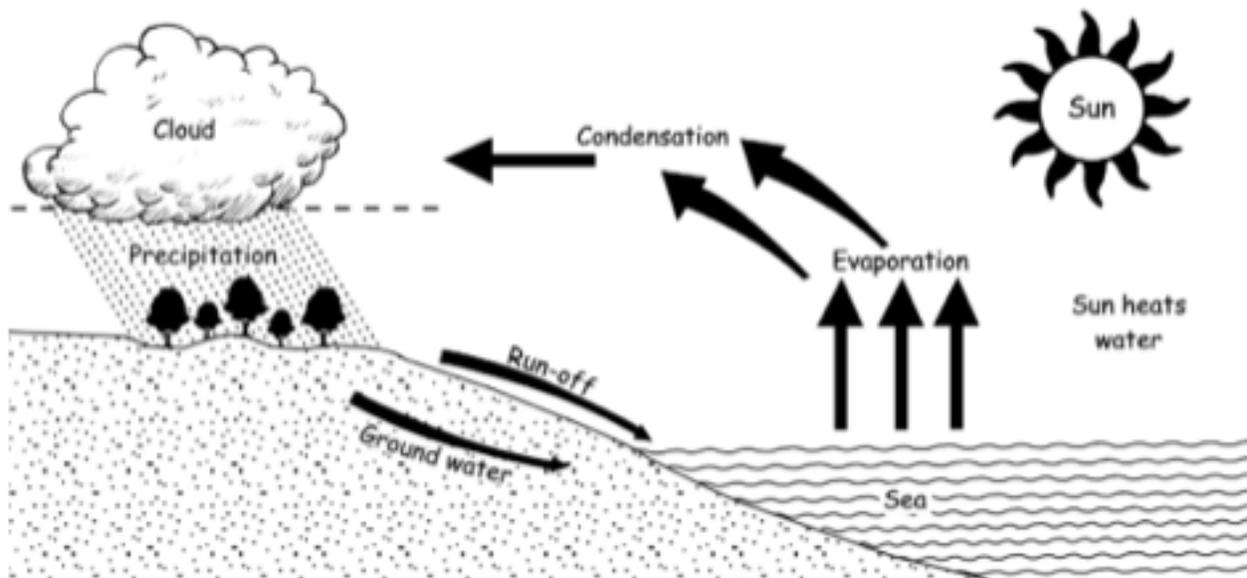
- *“I can analyze information presented visually, orally, or quantitatively.”*

**Practice**

9. What graphic feature would best accompany the passage, “When Water Moves Sediments”?

- a. Timeline
- b. Map
- c. Picture

Use the graphic feature below to answer #10 & 11.



10. In the diagram, what happens when the precipitation falls from the clouds?

a. The water becomes either run-off or ground water, making its way to the sea

b. The run-off water from the sea gets evaporated by the sun

c. The evaporated water turns into condensation

11. How does the diagram help you understand the water cycle?

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# Benchmark 2 Essential Reading Vocabulary

- \* **main idea** - the central idea in a piece of writing
- \* **supporting details** - statements that support the main topic or theme
- \* **expository (informational) text** - a non-fiction text that provides information about a topic
- \* **structure** - features of an expository text that help the reader better comprehend the text
- \* **chronology** - a record of events in the order that they occurred
- \* **comparison** - when an author explains how two things are alike and different
- \* **cause** - what made something happen
- \* **effect** - the result of something happening
- \* **conflict (problem)** - the problem in a story
- \* **resolution (solution)** - how a problem is solved
- \* **inference** - an educated guess about what will happen next using evidence from the text.
- \* **evidence** - anything used to prove something to be true
- \* **firsthand account** - A description of an event that is told by someone who participated in that event
- \* **secondhand account** - A description of an event that is told by someone who did not directly participate in the event
- \* **primary source** - Information from a firsthand account
- \* **secondary source** - books or articles that discuss primary sources, created by someone who was not a participant in the event

## Answer Key

1. B
2. C
3. B
4. Answers may vary. Example: Both text gives details about the trip across America.
5. A
6. B
7. B
8. C
9. A
10. A
11. Answers may vary. Example: The diagram shows the cycle of water and how it gets out of the cloud as precipitation to the last stage, condensation.