

Multiples

2: 2, 4, 6, 8, 10, 12...

5: 5, 10, 15, 20, 25...

10: 10, 20, 30, 40, 50...

12: 12, 24, 36, 48, 60...

25: 25, 50, 75, 100...

50: 50, 100, 150, 200...

Factors

12	45	7	16

19	25	8	1



Name: _____

Problem Solving

My Work!

HOMEWORK

3. PRACTICE Use Math Tools

A garden store has 868 plants. They are divided equally into two groups. How many plants are in each group?

Divide. Use the Distributive Property or partial quotients.

$$\begin{array}{r}
 4. \quad 3 \overline{)762} \\
 \underline{- 600} \\
 162 \\
 \underline{- 150} \\
 12 \\
 \underline{- 12} \\
 0
 \end{array}$$

+ + =

762 ÷ 3 =

$$\begin{array}{r}
 5. \quad 2 \overline{)426} \\
 \underline{- 400} \\
 26 \\
 \underline{- 20} \\
 6 \\
 \underline{- 6} \\
 0
 \end{array}$$

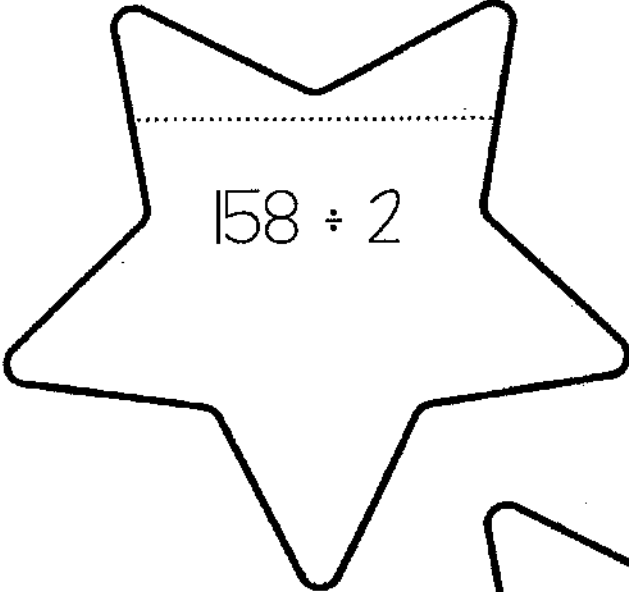
+ + =

426 ÷ 2 =

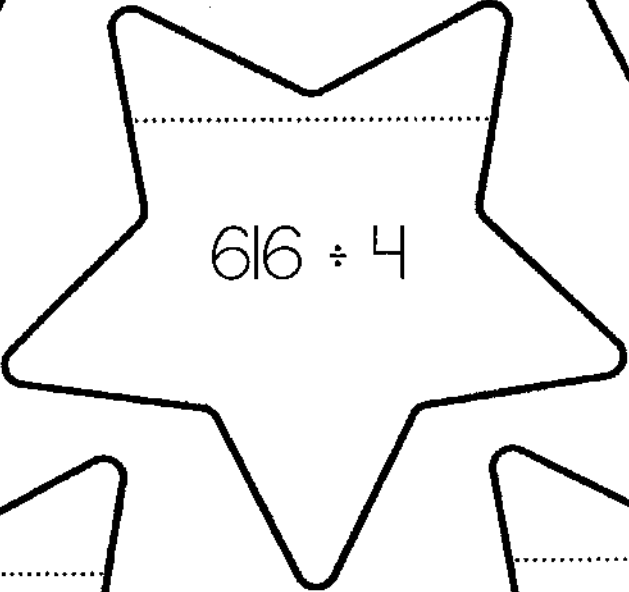
Vocabulary Check



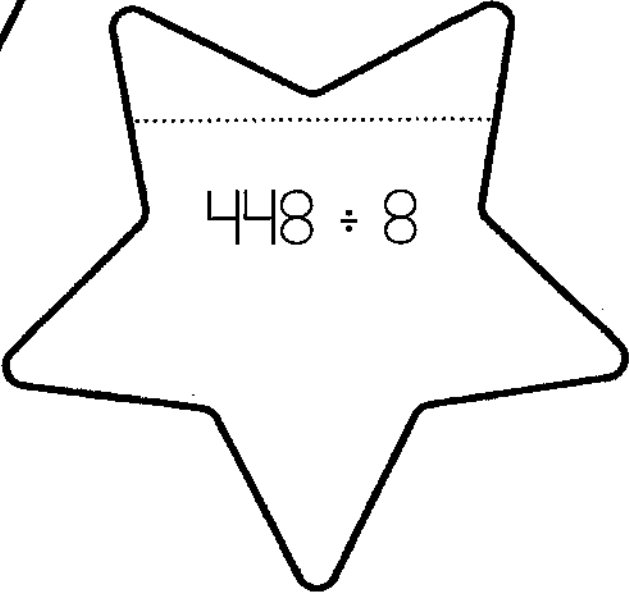
6. Explain why it can be helpful to use partial quotients when dividing.


$$158 \div 2$$


$$1,290 \div 2$$


$$616 \div 4$$


$$3,490 \div 5$$


$$448 \div 8$$

Division

Array

The division problem $762 \div 3$ tells us that $3 \times$ a number equals 762 ($3n = 762$). We can use multiplication to find the answer to this division problem.

?	Hundreds
	$3 \times 100 = 300$
	$3 \times 200 = 600$
	$3 \times 300 = 900$
3	Tens
762	Ones

Division

Array

$2,478 \div 7$
($7n = 2,478$)

?	Hundreds
	Tens
7	Ones
2,478	

Name _____

Date _____

MATH EXTENSION—PROBLEM OF THE WEEK

Investigation 3: Electromagnets

A class in Iowa had just finished building electromagnets. The students wanted to know if electromagnets worked the same in Washington, so they contacted their pen pals with a plan. Each class lifted little washers with 20-wind electromagnets and 40-wind electromagnets. After counting the number of washers, they each sent their results to the other class. When the numbers were organized, this is what the students saw.

Iowa		
Group	20 winds	40 winds
1	14 washers	30 washers
2	15 washers	35 washers
3	14 washers	28 washers
4	13 washers	38 washers
5	16 washers	41 washers
6	17 washers	33 washers
7	19 washers	29 washers
8	20 washers	30 washers

Washington		
Group	20 winds	40 winds
1	18 washers	23 washers
2	13 washers	30 washers
3	16 washers	31 washers
4	17 washers	27 washers
5	20 washers	42 washers
6	18 washers	33 washers

Do you think electromagnets work the same in Iowa as in Washington? Why or why not?

Name _____ Date _____

MATH EXTENSION—PROBLEM OF THE WEEK

Investigation 2: Ecosystems

A student wants to set up a tropical-fish aquarium. She has \$20.00 to spend on the fish. The store has four types of fish for her tank. She wants at least one of each type of fish. There is no tax charged on fish. She wants to have \$2.00 or less left after she buys all of her fish.

Type of fish	Cost per fish	Length of fish
Angelfish	\$2.98	7 cm
Lampeye	\$1.59	3 cm
Mollies	\$1.35	4 cm
Neon tetras	\$1.70	2 cm

- What combination of fish could she buy? How much money will she have left? Show all your work.
- The student's parents agreed to buy the aquarium tank for her new fish. The student remembers from her aquatic-environments project that tropical fish need 1 liter of water for every 3 centimeters (cm) of fish length in the aquarium. What size aquarium in full liters do her fish need? Show your work.

Bonus problem

Can you find another combination of fish the student could buy? What size tank does she need for these fish?

Name:

Date:

Formative Assessment: Decomposing Fractions

Decompose the fraction $\frac{9}{10}$ in **two different ways**.

Two Terrestrial Environments

Environmental scientists know a lot about Earth's **environments**. There are **aquatic** environments and **terrestrial** environments. *Terrestrial* refers to Earth's land. There are six major terrestrial environments in the world. They are tropical rain forest, desert, temperate deciduous forest, grassland, taiga, and tundra.

Each environment can be described in terms of **environmental factors**. Environmental factors are **living** and **nonliving** parts of the environment. The living parts of an environment are all the plants and animals that live and **thrive** in that place. The main nonliving components that define the six environments are **temperature**, rainfall, and soil type.

The tropical rain forest environment is different from the desert environment. The tropical rain forest is hot and wet, and the soil is poor because it lacks **nutrients**. The desert environment is dry and sandy. Most deserts are hot, but some are cold. Let's take a closer look at these two terrestrial environments and compare the living and nonliving environmental factors.



A tropical rain forest environment and a desert environment

Living Factors in Tropical Rain Forests

Tropical rain forests are home to more kinds of life than any other terrestrial environment. At least half of all the different kinds of plants and animals in the world live in tropical rain forests. Tropical rain forests are also the winter homes for many birds that live in other places the rest of the year.

Life in the rain forest can be divided into layers. Each layer has different plants and animals. Most of the tropical rain forest plants are trees. They grow to heights of 20 to 30 meters (m). Because the trees grow very close to one another, their tops grow together. This forms a broad **canopy**, or roof, above the rain forest.

A tropical rain forest canopy



The highest layer in the rain forest is the canopy. There is a lot of sunlight in the canopy layer. This is where most of the rain forest animals live. Monkeys, sloths, and bats spend most of their time here. Tree frogs and snakes live in the treetops along with toucans, hummingbirds, ants, and beetles. These are just a few of the millions of different kinds of animals that live in the canopy. Orchids, ferns, and other "air plants" grow on the branches of the canopy trees. Air plants use the trees for support and get water from the falling rain.

The layer below the canopy is the **understory**. Very little sunlight makes it through the canopy to the understory. It is a dark place full of tree trunks, young thin trees, and broad-leafed plants that thrive in shady conditions. A number of these plants are popular house plants in the United States. The animals living in this layer include jaguars, leopards, frogs, snakes, parakeets, and many kinds of **insects**.

The bottom layer is the forest floor. The forest floor is often covered with moss and wet leaves. Almost no sunlight makes it to the floor. This is where centipedes and scorpions live. Many insects, such as termites, ants, cockroaches, and beetles, also live here. Earthworms and **fungi** use the dead leaves as **food**. Larger animals, such as tapirs, dig up roots in the forest floor.



Can you identify the tapir, frog, and sloth?

Living Factors in Deserts


Some people think of deserts as hot, dry wastelands. That can be true, sometimes. In areas of shifting sand where it never rains and strong winds blow, such as parts of the Sahara Desert in Africa, plants and animals are rare. But deserts have areas that get some water, and those areas are full of life.

Fewer kinds of plants and animals live in deserts than in wetter environments. Desert plants and animals have **structures** and **behaviors** that help them survive in a dry environment. You can see plants and animals with these adaptations in parts of the deserts found in the southwestern United States.

**Sand dunes
in the Sahara
Desert in
northern Africa**

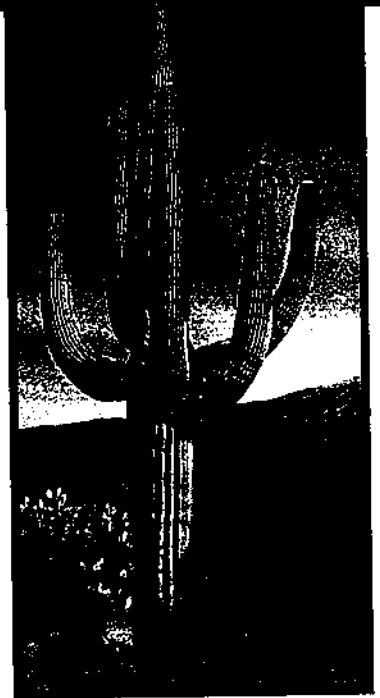


**The Mojave Desert
in the American
southwest**



In deserts, some plants grow far apart. Their root systems spread over a large area. This distance lets them get water and nutrients without competition from other plants. Some desert plants, such as the mesquite tree, send their roots deep into the desert soil. Mesquite tree roots might go down 81 m to reach water.

Cacti store water in their broad, fleshy blades or columns, which are actually stems. They use the stored water during long dry periods. Cacti don't have leaves but they do have spines. The seeds of some desert plants can lie in the soil for years until it rains enough for them to sprout.



A saguaro cactus



A desert bighorn sheep



A desert tortoise



A desert iguana

Animals survive well in the southwest deserts. Insects, spiders, reptiles, birds, and mammals, such as bighorn sheep, live in deserts. Many desert animals are **nocturnal**. Nocturnal animals avoid the heat by coming out only at night.

Desert tortoises are comfortable in the desert. They dig deep **burrows**. When it is too hot or too cold, they have a safe place to stay. Tortoises eat many kinds of plants, especially flowers and fruits. Sometimes they will even eat the moist pads of cactus plants. Tortoises drink a lot of water when they can and store it in their bladders.

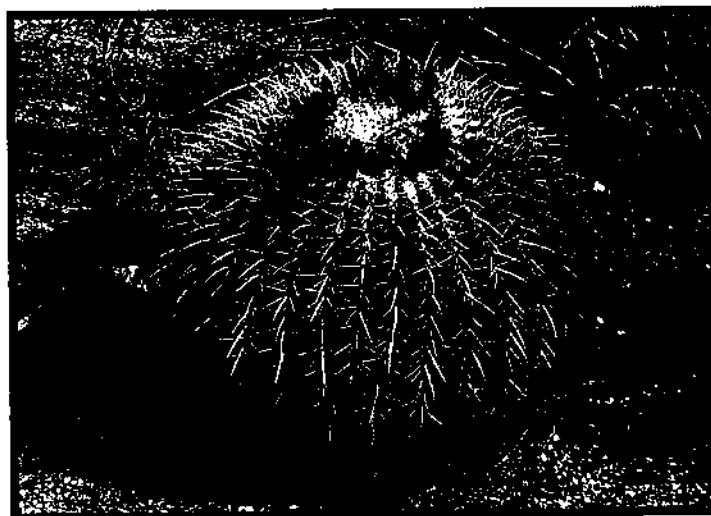


A spadefoot toad

Spadefoot toads are **amphibians**. That means they have to **reproduce** in water. Is the desert a good place for them to live? Yes, because they have a behavior to help them survive. When the weather is hot and dry, the toads burrow about a meter underground. They can stay there for up to 9 months. They become **dormant** and live on the fat stored in their bodies. When it rains, spadefoot toads leave their burrows and find mates. The females lay eggs in rain puddles. The eggs soon hatch into tadpoles. The tadpoles grow into young toads. The young toads have to become adults before the puddles dry up or they will die. In a couple of months, the adult toads burrow down into the ground and wait for next year's rain.

Every desert plant and animal has structures and behaviors that allow it to survive and thrive in the hot, dry desert.

The stem of a barrel cactus is round with ribs that are covered with spines.



Nonliving Factors in Rain Forests

Look at the map to see where tropical rain forests are on Earth. Can you find the ones in Australia? In Asia? In Africa? In Central America? In South America? Where else are there tropical rain forests? Find the line that shows the equator.

Tropical rain forests are found near the equator.

■ = Tropical rain forests

Tropical rain forests are wet and hot all year. The rainfall in rain forests is about 200 to 450 centimeters (cm) per year. How does that compare to where you live? Here are average rainfalls for five cities in the United States.

- Houston, Texas = 122 cm
- Charlotte, North Carolina = 110 cm
- Chicago, Illinois = 92 cm
- Anchorage, Alaska = 40.5 cm
- Phoenix, Arizona = 21.5 cm

The rain forest soil is shallow and not very **fertile**. Most of the nutrients that plants need to survive are in the trees. If the trees are cut down and taken away, the nutrients are lost to the rain forest environment. This is why it takes a long time for tropical rain forests to grow back once they are destroyed.



El Yunque National Forest

Nonliving Factors in Deserts

Scientists define a desert environment as any place on Earth that receives less than 25 cm of rain per year. Soils are rocky or sandy in deserts. Water runs off the land quickly or sinks into the sand. Water **evaporates**, or dries up, quickly in the desert. Most of the small amount of water that does fall on the desert is lost before plants and animals can get to it. Look at the map to see where deserts are on Earth.

Deserts are found north and south of the equator.



Deserts are the hottest places on Earth during the summer. But during the winter, the temperatures can drop below freezing. Snow is seen regularly in parts of the deserts in southern California, China, and South America.

About 20 percent of Earth's land surface is desert. The small amount of rain, high temperatures, and large temperature changes from season to season make life challenging in the desert.

Snow on Joshua trees in the Mojave Desert





A tropical rain forest environment



A desert environment

Thinking about Environmental Factors

- 1.** What are the environmental factors that define a tropical rain forest environment?
- 2.** What are the environmental factors that define a desert environment?
- 3.** What are some of the structures and behaviors that help organisms survive in the desert?