



# Sixth Grade Math

# Write and Evaluate Numerical Expressions for Situations

**I Can** write and evaluate numerical expressions using the order of operations.

## Spark Your Learning

Two tour groups are visiting an aquarium. There are 20 children in one group and 22 children in the other. Along with the 2 group leaders, there are 5 additional adults between the two groups. If the cost per child is \$9.00 and the total for both groups is \$490, what is the cost per adult? Explain your reasoning.



© Houghton Mifflin Harcourt Publishing Company • Image Credit: ©Vlad67/Shutterstock



**Turn and Talk** If the aquarium gave both groups a 10% discount, what would the total cost be? Explain.

## Write and Evaluate Numerical Expressions for Situations

**I Can** write and evaluate numerical expressions using the order of operations.

### Spark Your Learning



Two tour groups are visiting an aquarium. There are 20 children in one group and 22 children in the other. Along with the 2 group leaders, there are 5 additional adults between the two groups. If the cost per child is \$9.00 and the total for both groups is \$490, what is the cost per adult? Explain your reasoning.

\$16.00 per adult

Possible reasoning:

Children: 20 children and 22 children for a total of 42 children

$$42 \cdot \$9.00 = \$378.00$$

$$490 - 378 = 112$$

There are 2 group leaders and 5 additional adults, or 7 adults.

$$112 \div 7 = 16$$

So, the cost per adult is \$16.00.

© Houghton Mifflin Harcourt Publishing Company • Image Credits: ©Vlad15/Shutterstock



**Turn and Talk** If the aquarium gave both groups a 10% discount, what would the total cost be? Explain. See possible answer at the right.

## 1 Spark Your Learning

### ► MOTIVATE

Introduce the problem. **Ask students:** What do you know about aquariums? Tell students to discuss and share with their partner or team members in a small group.



### SUPPORT SENSE-MAKING Three Reads

Have students read the problem three times. Use the questions in the Three Reads box below for a different focus each time.

### ► PERSEVERE

If students need support, guide them by asking:

- Q Advancing • Use Tools** Which tool could you use to solve the problem? Why is this tool more strategic?  
Students' choices of strategies and tools will vary.
- Q Assessing** How can you find the cost of admission for the children? Possible answer: I can use the number of children, 42, and multiply by the cost per child, \$9.
- Q Assessing** How can you find the total cost of admission for the adults? Possible answer: I can multiply the cost per child, \$9, by the number of children, 42. Since  $9 \times 42 = \$378$ , I can subtract this amount from the total cost of \$490 to get \$112.
- Q Assessing** How can you finish solving the problem? Possible answer: I can divide the total cost for the adults by the number of adults in the group. There are 7 adults, and  $\$112$  divided by  $7 = \$16$ . The cost per adult is \$16.



**Turn and Talk** If some students are having trouble finding the 10% discount, remind them that 10% is one tenth of the total cost of \$490. They can then subtract that amount from the initial total cost. \$441; Possible answer: I can multiply \$490 times 90%.

EL

## SUPPORT SENSE-MAKING • Three Reads

Tell students to read the question stem three times and prompt them with a different question each time.

- 1** What is the situation about?  
Possible answer: the cost of admission for adults to an aquarium
- 2** What are the quantities in the situation?  
2 tour groups: 20 children in one group and 22 children in the other group, 2 group leaders and 5 additional adults, the admission cost is \$490, the cost per child is \$9.00
- 3** What are possible mathematical questions that you could ask for the situation?  
Possible questions: What is the total number of children? What is the total number of adults? What is the total cost for the children? What is the total cost for the adults? What is the cost per adult?

### ► BUILD SHARED UNDERSTANDING

Select students who used various strategies and tools to share with the class how they solved the problem. Have students discuss why they chose a specific strategy or tool.

# Equivalent Expressions

## Performance Task

### Answer the questions.

1. Darla is creating a family tree. She starts by writing down the names of her two parents. For each of her parents, she writes down the names of their two parents, and so on. After six generations, how many names has she written down, not including herself? Write and evaluate an expression using an exponent to find out.

---

2. Darla wants to draw her family tree on a rectangular piece of paper. She has a large piece of paper that is 400 square inches.

---

- a. Write the prime factorization of 400.

---

- b. List all the possible whole-number lengths and widths of a piece of paper that has an area of 400 square inches.

---

---

- c. Which length and width would be best for Darla's project? Why?

---

3. Darla wants to get her family tree drawing framed. The perimeter of a rectangle is two times the length plus two times the width. Write an algebraic expression to represent the perimeter  $p$  of a rectangle.

---

4. A wood frame costs \$1.50 per inch.

- a. Write an expression to find the cost of a wood frame. Use the algebraic expression you wrote in Exercise 3.

---

- b. Use a property to write an equivalent expression for the cost of a wood frame. Tell which property you used.

---



UNIT  
4**Equivalent Expressions****Performance Task****Answer the questions.**

1. Darla is creating a family tree. She starts by writing down the names of her two parents. For each of her parents, she writes down the names of their two parents, and so on. After six generations, how many names has she written down, not including herself? Write and evaluate an expression using an exponent to find out.

$$2^1 + 2^2 + 2^3 + 2^4 + 2^5 + 2^6 = 2 + 4 + 8 + 16 + 32 + 64 = 126 \text{ names}$$

2. Darla wants to draw her family tree on a rectangular piece of paper. She has a large piece of paper that is 400 square inches.

- a. Write the prime factorization of 400.

$$2 \times 2 \times 2 \times 2 \times 5 \times 5$$

- b. List all the possible whole-number lengths and widths of a piece of paper that has an area of 400 square inches.

$$1 \times 400, 2 \times 200, 4 \times 100, 5 \times 80, 8 \times 50, 10 \times 40, \\ 16 \times 25 \text{ and } 20 \times 20$$

- c. Which length and width would be best for Darla's project? Why?

$$16" \times 25" \text{ to fit the names best}$$

3. Darla wants to get her family tree drawing framed. The perimeter of a rectangle is two times the length plus two times the width. Write an algebraic expression to represent the perimeter  $p$  of a rectangle.

$$P = 2L + 2W$$

4. A wood frame costs \$1.50 per inch.

- a. Write an expression to find the cost of a wood frame. Use the algebraic expression you wrote in Exercise 3.

$$\text{Cost of frame} = \$1.50(2L + 2W)$$

- b. Use a property to write an equivalent expression for the cost of a wood frame. Tell which property you used.

$$\$1.50(2L) + \$1.50(2W) \quad \text{Distributive Property}$$



# Sixth Grade Social Studies

---

# KCS @ home

6th Grade Social Studies

**Please read and complete the following DBQ, there will be a short video to accompany this assignment on KCS@home TV**

In the ancient Greek city-state of Athens, citizenship carried both rights and responsibilities. A male citizen was expected to help defend Athens in war, to serve on a jury, and to participate in debates about issues. Pericles, a great leader in Athens, said:

*“We do not say that a man who takes no interest in politics is a man who minds his own business; we say that he has no business here at all.”*



1. What were some of the responsibilities of citizens in Athens?
2. What did Pericles think about citizens who did not participate in politics? What words lead you to think this?
3. In your opinion, do think that Pericles would approve of our Representative Democracy today?



# Sixth Grade

## ELA



**Monday: Answer questions one and two in a complete paragraph.**

**Returning to the Text**

- Return to the text as you respond to the following questions. Use text evidence to support your responses.
  - Write any additional questions you have about the editorial in your Reader/Writer Notebook.
1. Who is the intended audience of the article? Why did the author write the article?
  2. **KQ** In paragraph 3, the author says she uses homework to “supplement” the notes she gives in class. What does *supplement* mean in this opinion piece? Use context clues and a dictionary to help you decide. Then tell why the author thinks it is necessary to *supplement* her notes with homework.

**Tuesday: Answer questions three and four in a complete paragraph.**

3. How does the author strengthen her argument in paragraphs 5 and 6?
4. Why does the author say there is room for compromise in paragraph 7?

**Wednesday: Answer question five in a paragraph. Answer question six.**

**Working from the Text**

5. **KQ** At what age does the author say homework becomes more important, and how does she provide evidence to support her claim?
6. Which of these statements from the article is the **best** example of a claim?
  - A. I struggle daily with making sure my daughter does her homework.
  - B. American kids need homework.
  - C. I teach each topic in depth so that students understand and appreciate the information.

**Thursday: Answer questions seven and eight in complete paragraphs.**

7. Explain the claim you selected in question 6.
8. Explain why you agree or disagree with the claim. Then share your position on the subject of homework.

**Friday: Read the section below and write your own debatable claim about homework.**

**Claims Are Debatable**

A claim must be something that people could reasonably have differing opinions on. If your claim is something that is generally agreed upon or accepted as fact, then there is no reason to try to convince people.

**Example of a non-debatable claim:** *Air pollution is bad for the environment.* This claim is not debatable. First, the word *pollution* means that something is bad or negative in some way. Further, all studies agree that air pollution has a negative impact; they simply disagree on the specific impact it will have or the scope of the problem. No one could reasonably argue that air pollution is good.

**Example of a debatable claim:** *At least 25 percent of the federal budget should be spent on limiting air pollution.* This claim is debatable because reasonable people could disagree with it. Some people might think that this is how we should spend the nation's money. Others might believe that this amount is too much to spend to limit air pollution. Still others could argue that corporations, not the government, should be paying to limit air pollution.



# Sixth Grade Science

# 6<sup>th</sup> Grade Science: Week 4 April 27

## Climographs: Imagine Living in Another Biome



### Directions:

Below you will find review *information* and an *activity* to complete about **climographs**. This information is intended to help you remember that the **climate** in an area greatly affects the living (**biotic**) *organisms* and other non-living (**abiotic**) *factors* in that area.

### Part 1: Review the information below (for student to read alone or with parent):

1. What is a **biome**?

**Biomes** are *large* areas on Earth that have *similar plants, animals, geography, and climates*. The world can be grouped into a *number* of distinct biomes. The 6 major **land biomes** on Earth are: **desert, tundra, taiga, temperate deciduous forest** (this is ours in Knoxville, TN), **tropical rain forest**, and **grasslands**. For the *activity*, only 3 of the 6 land **biomes** will be used.

2. Biotic factors (living things) in an environment often *depend* on or change based on the abiotic (non-living) factors. **Abiotic factors** include water, air, sunlight, temperature, precipitation, soil, rocks, minerals, clouds, and others. The two main **abiotic factors** scientists use to *define* the *climate* of an area are temperature and precipitation.

3. Weather is the state of the atmosphere at a particular time and place. *Climate* is the long-term pattern of weather in a *particular* place.

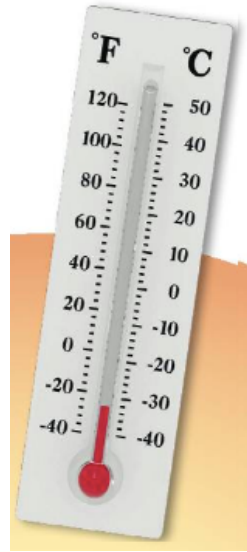
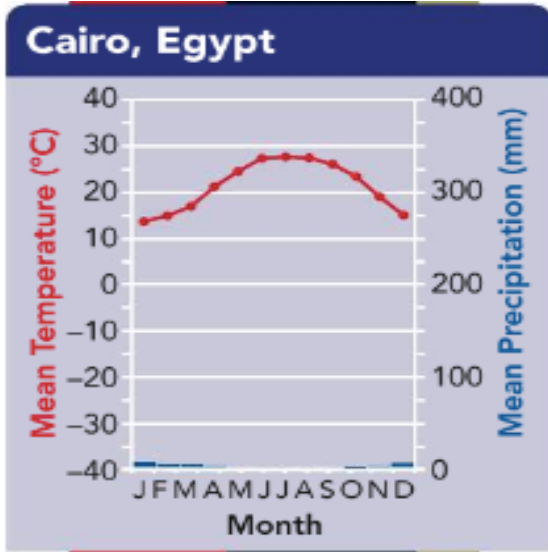
4. Climographs are graphs that show both average monthly temperatures and precipitation in a particular location. These two *data* sets are located on the same *graph*. The plotted *line usually* represents the **temperature** data, while the bars usually represent the **precipitation** data.

5. The amount of precipitation (water/snow/sleet/hail falling to the ground) an area receives and the average temperature of the area will determine the abundance and **biodiversity** (the wide variety of plants and animals) of living organisms in the area. The temperature of an area will determine the growing season of the *plants*. The more **producers** (plant life) you have in an area, the more **consumers** there will be and the area will have greater biodiversity. *Moderate* climates will have more *plants and animals*, while extreme *climates* will have far less plants and animals.

6. Use the climograph for Cairo shown below and see if you notice the following:

- The temperature in Cairo is high/warm throughout the year (look at the line graph and the axis labels on the left side of the graph that shows temperature).
- The precipitation is very low throughout most of the year with the greatest amounts of precipitation occurring *during* the months of January and December (these *data* are shown by the bars and the labels on the right side of the graph).

- c. Note that the data shown is an average for the months of the year.
- d. The numbers/types of **biotic** organisms you would expect to find in Cairo due to its **climate** (warm/hot temperatures/low precipitation) would be very limited *plant* and *animals species* due to the high temperatures and low water conditions.



A reference thermometer is shown to help you with Fahrenheit vs. Celsius (the climograph data are measured in Celsius and millimeters). Remember that temperatures in the 20<sup>o</sup>-30<sup>o</sup> Celsius range would be roughly 68<sup>o</sup>-86<sup>o</sup> using the Fahrenheit scale. Also, 25 mm = 1 inch, so 100mm = ~4 inches.

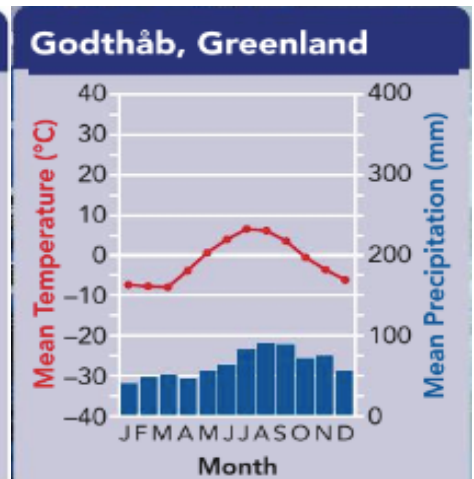
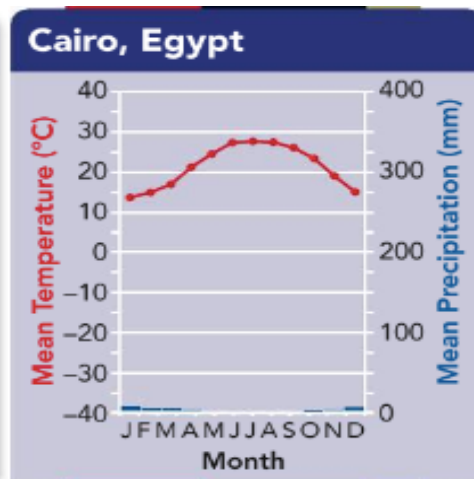
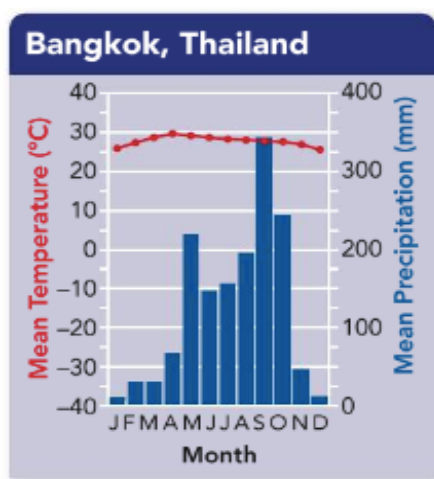
**Part 2: Review - Activity Directions:**

1. Choose one of the 3 climograph locations below to use for your activity (*note that we are using only 3 of the 6 land biomes found on Earth for this activity*):

**Tropical Rain Forest:**

**Which biome is this?**

**Tundra/Ice Cap:**



Use the table below to help you with your drawing *activity*. Note that some specific plants and animals along with general categories of both are listed to help you.

Location	Biome Type	Temp.	Precip.	Plants	Animals
Bangkok, Thailand	Tropical RF	Warm /hot	High	Vines, flowers, layers of trees, ferns, mosses, orchids, bamboo, +	Insects, parrots, snakes, mammals, chimpanzees, +
Cairo, Egypt	Desert	Hot days/ cold nights	Very low	Cactus, yucca, thorny bushes, tumbleweed, Joshua trees, +	Camels, scorpions, snakes, birds, mammals, +
Godthab, <sup>1</sup> Greenland	Tundra/ Ice Cap	Very cold	Very low	Mosses, lichens, shrubs, grasses, wild- flowers, + (no trees!)	Artic fox, reindeer, insects, ducks/ geese, Snowy owl, +
+ =	Too	Many	Others	to List!	

Did you determine that the biome for Cairo, Egypt is a desert biome? Good job!

2. Based on the location you have chosen, think about the data in the climograph. What type of climate would this location have? What types of living organisms would you find there? *Imagine* how things would be *similar* or *different* if you moved there.

3. Imagine that for the coming school year, you are moving to the biome you selected. On a blank sheet of paper, you will draw a *picture* of yourself in the **biome** you chose with the **climate** shown in the **climograph**. Use the criteria below.

4. Include the following in the drawing of yourself in the biome you picked:

- Draw yourself wearing *appropriate* clothing for the **climate**.
- Draw at least 6 biotic (living or once living) *factors* you would find in that biome/climate. Label each factor.
- Draw at least 4 **abiotic** (non-living) *factors* you would find in that biome/climate\*\*. Label each factor.
- Draw what your house might look like (how would it be *different* from the place you live in now). Label at least 3 features that would be appropriate for the house in that **biome/climate**.
- Draw yourself doing an outdoor activity that is *appropriate* for the **climate** (i.e. snow skiing/sledding if there are cold temperatures and lots of snow).
- Fill up your entire paper so that there is very little blank space.
- Color your drawing if you have *crayons*, markers, or colored pencils available.

<sup>1</sup>Watch for English/Spanish Cognates! These words are similar or the same in both languages ☺



**\*\*NOTE:** The abiotic elements for the above biomes are not listed in the table. Remember, you will need to put items such as water, air, sunlight, temperature, precipitation, soil, rocks, minerals, clouds, and others, into your drawing.

**Part 3: Review - Activity Extensions (write answers on notebook paper or on the back of your drawing):**

1. What are the positive benefits of living in the new climate/biome that you chose? What might be some negative consequences of living in the new climate/biome you chose? Try to list at least 4 of each.
2. How would the outdoor activities you normally do at home be similar or different to the new climate you selected?
3. What change in clothing would you need to wear in the new biome that would be different from what you have now?
4. What are the major differences in abiotic and biotic factors in your chosen biome/climate as compared to where you live now? Would that matter to you? Why or why not?
5. Think about the feeding relationships in biomes that we learned about earlier this year. Draw a food web with at least 6 organisms for the biome/climate you selected. Be sure to properly label the organisms and draw the arrows in the correct direction for all feeding relationships.
6. Use what you learned this year about renewable resources such as solar energy, wind power, biomass, hydroelectric power, etc., to answer the following questions. What possible renewable resources could you use in the new biome/climate you selected? List at least 3 reasons the renewable resource would work well in the biome/climate. List any problems you can think of that could be caused by the renewable resource in the biome/climate you chose.

**The following 3 extensions will require internet access to accomplish, if you are interested in further research:**

7. Can you go online and find pictures of people and their homes for the specific city of the climograph you selected to compare your drawing to? How are the elements in your drawing similar or different to the pictures you found?
8. Does the location you picked have distinct seasons such as fall, winter, spring, and summer? Does your drawing reflect a particular season (if so, which one)? What would drawings of the 4 seasons for your location, including biotic and abiotic factors, look like? Draw the four seasons. Focus on climate for each season.
9. What would be another location in the world with a similar biome and climate? What are the similarities and differences in your location and the location you researched? List at least 4 of each.