

Mississippi College- and Career-Readiness Standards
Mathematics
Exemplar Lesson Plan

GRADE: 4

Title: *Let's Discover Decimal Fractions!*

Estimated Duration: 3 days

Real World Purpose:

Why do I need to learn about decimal fractions? I know that decimal fractions may not sound too exciting. But, I have good news for you. Believe it or not, you have used decimal fractions for many years. Can you remember sharing a pizza equally between family and friends? How about being a quarter of an hour early for school? Have you ever purchased an item for \$0.75? Hold on, we are about to discover the world of decimal fractions.

I Can:

- **4.NF.5:** Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. (*Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.) *For example, express $\frac{3}{10}$ as $\frac{30}{100}$, and add $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$.*
- **4.NF.6:** Use decimal notation for fractions with denominators 10 or 100. *For example, rewrite 0.62 as $\frac{62}{100}$; describe a length as 0.62 meters; locate 0.62 on a number line diagram.*
- **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 the conclusions, e.g., by using a visual model.

Prerequisite Skills:

- Estimate lengths using units of centimeters and meters. (2.MD.3)
- Solve word problems involving money. (2.MD.8)
- When the numerator and denominator are equal, the fraction represents 1. (2.G.3)
- Equivalent fractions represent the same area, interval, or amount. (3.NF.2)

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- The denominator represents the number of parts that comprise the whole and the numerator represents the number of parts that are being identified. (3.NF.2a)
- When the numerator is smaller than the denominator, the fraction is less than 1. (3.NF.2a)
- When the numerator is larger than the denominator, the fraction is greater than 1. (3.NF.2b)
- Create equivalent fractions. (3.NF.3b)
- Add and subtract fractions with like denominators. (4.NF.3)

Materials/Resources:

- Base ten blocks
- Tenths square
- Hundredths square
- www.georgiastandards.org
- Dimes
- Pennies
- Play money
- www.kdemath@education.ky.gov
- Meter stick
- Centimeter ruler
- Colored pencils
- Double number line diagrams
- Place value chart (whole numbers)
- www.edison.k12.nj.us
- Glue
- Poster paper
- Place value chart (decimals)
- Scissors
- Adding machine paper
- **Attachments: (Total 10)**

Key Vocabulary: (* = words defined in the MS CCR Mathematics Glossary)

- Numerator
- Denominator
- Equivalent fractions
- Decimal (point)
- Decimal notation
- Decimal fraction
- Double Number Line Diagram*
- Tenths
- Hundredths
- Meter
- Decimeter
- Centimeter

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Lesson Introduction

Student Exploration Activity:

Step 1: The teacher will place students in pairs. She will give each pair of students three sets of cards to match—one with expressions, (*Expression Card Set*) (4.NF.3), one with a value on a number line (*Number Line Card Set*) (3.NF.2), and one with a value expressed as an area (*Area Model Card Set*) (3.NF.2) (Attachment #1). To clarify, students will receive pages 1-3 of pages 1-5 of Attachment #1.

Step 2: The teacher will instruct students to take turns to match the expression with a number line or area model. Students are to place the cards side by side and explain their reasoning. It is the partner's job to agree with or question the match (MP.3).

Step 3: The teacher will use this activity to pre-assess students' skills on the aforementioned prerequisites (3.NF.2 and 4.NF.3) as well as lay a foundation for the upcoming work on decimals.

Step 4: The students will glue cards that have been matched to a sheet of poster paper. The teacher will continuously monitor students' work and when finished have students place these posters aside until later. These posters will be used in the closing activity on Day 1 when the teacher allows the students to glue the decimal numbers with the correct expression, number line, and area model.

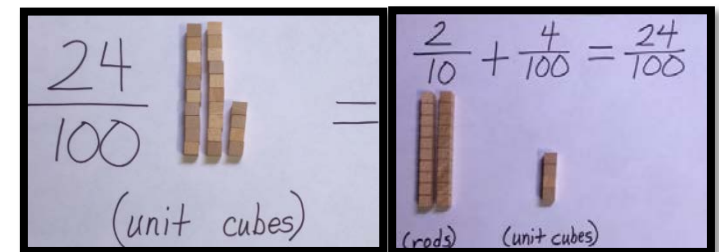
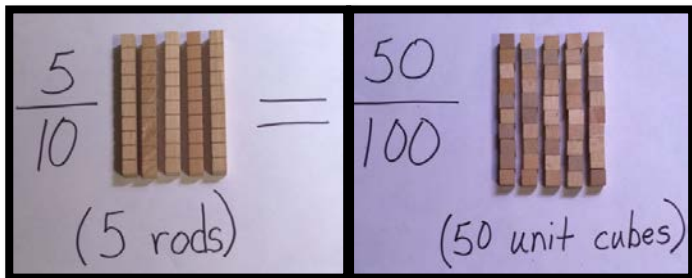
Lesson Activities

Day 1

1. The teacher will display a whole number place value chart that has been enlarged (Attachment #2) on the wall visible for all students to see.
2. The teacher will review the place value system from ones to hundreds stressing the importance of ten. The teacher will include for students in need of intervention base ten blocks or additional supports.
3. The teacher will pose the question, "*Where do fractions fit in on the place value chart?*" and allow students time to respond.

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- The teacher will use base ten blocks to now model the place values in a different way for decimal fractions. She will use the flat for the units or ones place, the rod for the tenths place, and the unit cube for the hundredths place (Attachment #3). The teacher will teach the concept of each larger model (flat) representing a group of 10 of the smaller model to its right (rod)—1 flat = 10 rods; therefore, 1 one = 10 tenths ($10/10$) and 1 rod = 10 unit cubes; therefore, 1 tenth ($1/10$) = 10 hundredths ($10/100$). [Note: 100 hundredths (100 unit cubes and $100/100$) = 1 one (a flat).] The teacher is now using the base ten blocks to represent part of a whole rather than only whole numbers. (The teacher will reiterate that decimal fractions can be represented with the base ten blocks.)
- The teacher will distribute base ten blocks to each student group. She will instruct students to use the place value blocks to show the following fractions as decimal fractions: $5/10$, $7/10$, $24/100$, $32/100$, and $30/100$. The teacher will ensure students connect the base ten blocks using rods and unit cubes in all variations. See the following example models.



- The teacher will ask students to draw a base ten model to show two decimal fractions of their choice with an explanation of how they know the model they draw correctly identifies the decimal fraction. They are to write the decimal fraction underneath the models. (Attachment #4 may be used for the struggling learner.)
- Students will construct viable arguments and critique the reasoning of their classmates' models.
- The teacher will introduce the concept of money with decimal fractions. Dollars represent the ones place which can be represented by a flat. Dimes represent the tenths place which can be represented by a rod and 1 dime is $1/10$ of a dollar and can be written in decimal notation as 0.1. Pennies represent the hundredths place which can be represented by a unit cube, and 1 penny is $1/100$ of a dollar and can be written in decimal notation as 0.01. The teacher will compare $1/10$ to the rod for 1 tenth (0.1) and $1/100$ to the unit cube for 1

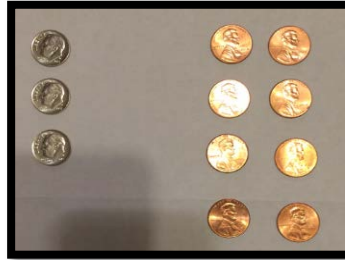
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hundredth (0.01). [If circumstances allow, the teacher may introduce to the advanced learner these decimal numbers that go with these models—10 tenths = 1.0 (10 rods = 1 flat) and 10 hundredths = 0.10 (10 unit cubes = 1 rod) and 100 hundredths = 1.00 (100 unit cubes = 1 flat).]

9. The teacher will distribute ten one-dollar bills, ten dimes, and ten pennies (play money) to student groups (pairs would be optimal). The teacher will introduce the vocabulary word, *decimal point*, and explain where it belongs on the place value chart model using the new place value chart including decimals ([Attachment #5](#)).
10. The teacher will guide students into showing the number \$2.45 using the decimal place value chart ([Attachment #5](#)) and inform students that the 2 is to the left of the decimal point so based on the chart this is 2 ones or 2 one dollar bills. The teacher will instruct the students that the decimal point separates the whole numbers from the decimal numbers. The teacher will instruct students that 4 dimes = $4/10 = 0.4$ and that this tenths place is the first place to the right of the decimal point. The teacher will instruct students that 5 pennies = $5/100 = 0.05$ and that this hundredths place is the second place to the right of the decimal point. She will instruct students that decimal fractions and numbers written in decimal notation are equivalent such as $\$2.45 = 2$ and $45/100$. The teacher will reiterate that $45/100$ is the same as $4/10 + 5/100$. The teacher will check for comprehension and correct any misconceptions. She will allow students to interact using MP.1, MP.2, MP.4, MP.5, MP.6, and MP.7. Students will work in groups of 2 to 4 to make the following “money” numbers—\$6.14, \$0.41, \$0.35, and \$0.08 showing these numbers on a decimal place value chart they have constructed as well as writing the decimal fraction that is equivalent for each of them.
11. The teacher will then give students a copy of a predetermined amount of dimes and pennies ([Attachment #6](#) for teacher use) to have them write the decimal number (\$.38). The teacher may have to guide students at the beginning. The teacher may use similar problems as needed until students are comfortable with this concept. The teacher will ensure that students make the connection that, for example, 3 dimes is the same amount as 30 pennies and the number could be written as 0.3 which is the same as $3/10$ or 0.30 which is the same as $30/100$ if not using the dollar sign. Therefore, in the problem at the beginning of #11, the decimal number 0.38 is $3/10$ or 0.3 plus $8/100$ or 0.08 and is the same as $38/100$ or 0.38. Even though students are not required to add fractions with unlike denominators in the MS CCR Grade 4 course, they can see that the decimal fractions with 10 and 100 in the denominator can easily be added together based on previous knowledge of knowing place values of decimals and where decimal fractions fit into the place value chart.

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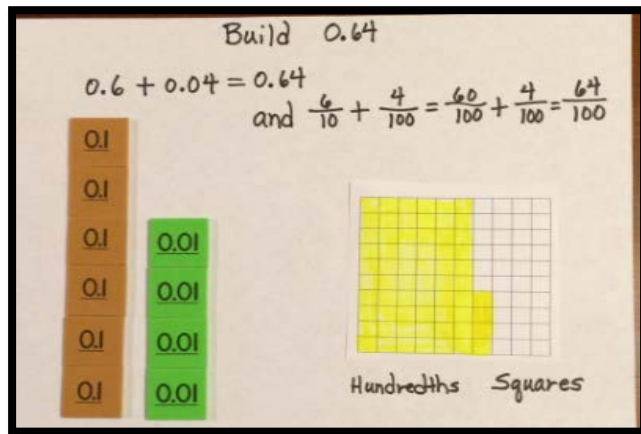
Attachment #6



Day 2

1. The teacher will use a double number line diagram as a visual model to extend decimals. The teacher will place students in pairs, provide each group with a copy of the *Decimal Cards* (Attachment #7), and a copy of the *Double Number Line Diagram* (Attachment #8). The teacher will supply students with the manipulatives, Place Value Decimal Strips and Place Value Decimal Tiles. The teacher will tell the students that one person in the group will use the decimal tiles and the other person will use the decimal strips to build the decimal numbers shown on the decimal cards. The teacher will then model the lesson before the students begin the work on the decimal cards and double number line diagrams. For example, to build 0.64 the teacher will introduce this lesson by using the following models with the class. The first model links the hundredths squares from yesterday's lesson to show 0.64 or $64/100$ to the decimal model with the decimal tiles. The second model shows 0.64 built using the decimal strips. The teacher will model as many of these examples as needed. The teacher will ensure all students are using the mathematical tools appropriately and attend to precision through effective questioning of students. Questions to include: (1) how are decimals and decimal fractions related? (2) How are decimal fractions written in decimal notation? (3) How can I model decimals and decimal fractions using the base ten number system? (4) What role does the decimal point play in our base ten number system? (5) When can tenths and hundredths be used interchangeably?

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Left Snapshot: Decimal Tiles

-and-

Right Snapshot: Decimal Strips
purchased



from www.EAeducation.com

2. The teacher will ask the students to locate 0.64 on a number line. (Students should respond that it would be between zero and one but a small distance past one-half of the way.) The teacher will draw a number line on the board and place 0.64 appropriately.
3. The students will complete the activity, *Decimal Cards* (Attachment #7) and *Double Number Line Diagram* (Attachment #8), by cutting out the decimal cards and placing/gluing them on the double number line diagram to indicate their appropriate location. They will build each decimal number on the cards with the decimal tiles and decimal strips and make use of MP.3 as they work. The teacher will monitor students as they work assisting students as needed. The teacher will also question students about the value of each decimal based on where they are on the number line. She will also require students to write an equation or an inequality to compare them.

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4. The teacher will present the following formative assessment task to the class in order for students to use multiple representations of decimals in decimal notation and as fractions using an area model. The teacher will have the students work independently in order to assess comprehension of 4.NF.5, 4.NF.6, and 4.NF.7. Formative Assessment Task: *Summer Camp Lookout Stations*—Directions—using the grid for the four lookout stations for the summer camp program determine what area each counselor will patrol (Attachment #9). Use colored pencils to color code the specific area each counselor will be responsible for. Explain your reasoning. Compare the area of the counselor with the smallest area to patrol with the counselor with the largest area to patrol. Directions: Mr. Taft will patrol $\frac{25}{100}$ of the area. Color his area red. Ms. Season will patrol 0.2 of the area. Color her area green. Ms. Lilly will patrol 0.05 of the area. Color her area yellow. Mr. Mike will patrol $\frac{1}{2}$ of the area. Color his area blue. The students will show their work by coloring in the areas and give an explanation of ensuring all areas are covered by someone. The teacher will ask questions as needed. Some questions to consider are: (1) How do you determine what areas will be shaded? (2) Are all areas covered? (3) What strategies did you use as you colored each area?
5. The teacher will monitor students as they complete the formative assessment task to ensure all students are on track or to make note of those students who require intervention.
6. When complete with the formative assessment task, the teacher will allow students to exchange their work and compare answers with their partner (MP.3). The students may have conversation around the work done. (Lesson closure)

Day 3

1. The teacher will build upon metric measurement from second grade (2.MD.3) when students estimated lengths using meters and centimeters. The teacher will reintroduce the meter stick in this lesson pointing out the 10 decimeters on the meter stick and the 100 centimeters on the meter stick. She will present the following facts—1 meter (the unit of measurement in the metric system) = 10 decimeters = 100 centimeters. The teacher will lead students to use a decimal number or decimal fraction to express the length of 1 decimeter in terms of a meter ($\frac{1}{10}$ m or 0.1 m) and the length of 1 centimeter in terms of a meter ($\frac{1}{100}$ m or 0.01 m). The teacher will show the class a centimeter ruler and question students about where the meter, decimeter, and centimeter are found on this ruler. The students should answer that there is not a whole meter or (not one meter) because the ruler is not long enough. The students should recognize that there are about 3 decimeters and about 30 centimeters on the ruler. The teacher will use the following

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questions to guide students to be able to measure accurately: “What will you do if you want to measure an object that is longer than the ruler?” and “How can you measure the same object using all three measurements we have discussed—the meter, decimeter, and centimeter?” The teacher will model measuring two to three items in the classroom.

- The teacher will place students in groups of four and ask each group to select five objects in or around their desks to measure using a centimeter ruler. If the ruler is not long enough, students will have to add lengths together. The teacher will ask students to keep a list of the items they measure with the name of the item and the length of the item using the meter, decimeter, and centimeter. The teacher will monitor students and assist as needed making a mental note of those students who will require intervention or may need an extension of this activity.

Lesson Closure

- On Day 1, the teacher will close the lesson by referring students back to the poster they created from the **Student Exploration Activity**, have students move back in their pairs, and distribute the *Decimal Card Set* from Attachment #1. The students will be instructed to glue these cards to their correct places on the posters. The teacher will monitor students for comprehension.
- On Day 2, the teacher will close the lesson by allowing students to share their work on the formative assessment task.
- Measure – Share:** The teacher will ask the students on Day 3 to use their centimeter rulers and measure their partner’s arm from elbow to wrist. The students will share measurements with each other. They will express the measurement as a centimeter and as a meter.

Essential Questions:

- How can I model decimal fractions using the base ten place value system?
- How are decimal numbers and decimal fractions related?
- How are decimal fractions written using decimal notation?
- How can I write a decimal to represent part of a group?
- What patterns occur on a number line made up of decimal fractions?
- What role does the decimal point play in our base ten number system?
- When can tenths and hundredths be used interchangeably?
- When we compare two decimals, how do we know which has the greater value?

Some Essential Questions adapted from www.georgiastandards.org

Standards for Mathematical Practice

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- ✓ Make sense of problems and persevere in solving them.
- ✓ Reason abstractly and quantitatively.
- ✓ Construct viable arguments and critique the reasoning of others.
- ✓ Model with mathematics.
- ✓ Use appropriate tools strategically.
- ✓ Attend to precision.
- ✓ Look for and make use of structure.
- ✓ Look for and express regularity in repeated reasoning.

Supplemental Activities

Intervention

- When students draw base ten models to represent decimal fractions on Day 1, the teacher may supply struggling learners with place value tenths square and hundredths square to assist them in writing and explaining their choices (**Attachment #4**).
- On Day 2, students needing help placing **Decimal Cards** (**Attachment #7**) onto the **Double Number Line Diagram** (**Attachment #8**) may use visual models of the decimal numbers using the hundredths squares (**Attachment #4**) to color in the number and then place the models from smallest to largest number values. Students can then place the decimal cards on the double number line diagram appropriately.
- The teacher may allow students on Day 3 to use meters and centimeters to measure objects until they are ready to use the decimeter to measure.

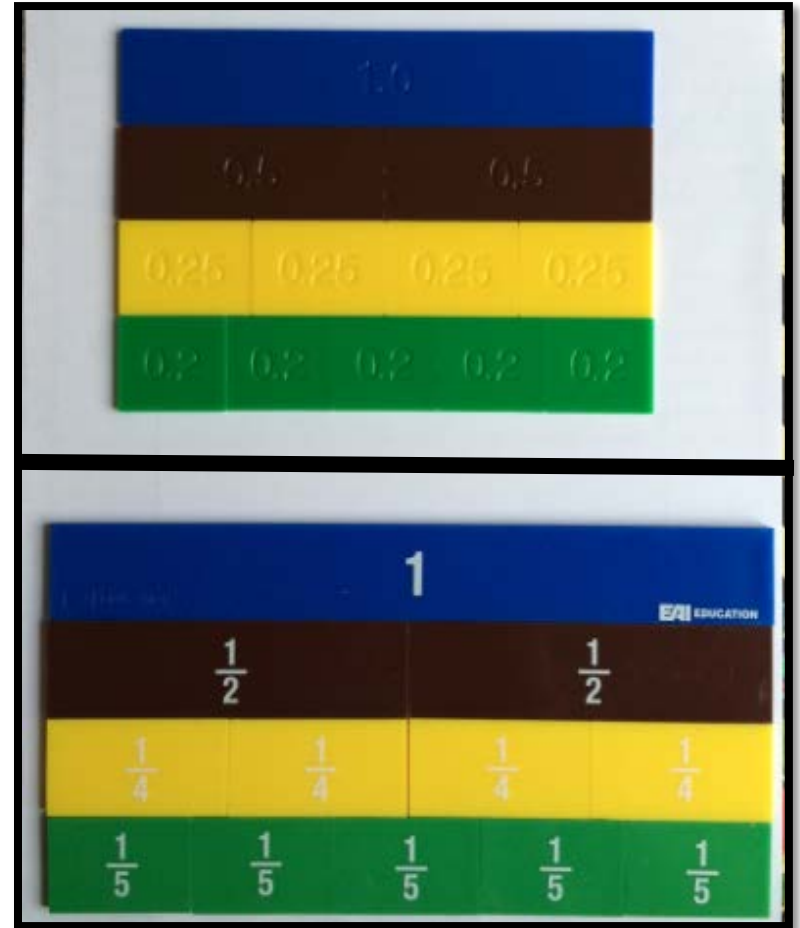
Enrichment

- In the **Student Exploration Activity**, students will match the word form of the decimal with the appropriate cards (**Word Form Card Set** located in **Attachment #1**) during the closure part of the lesson.
- Advanced learners may use circle area models that represent decimal fractions and decimals (**Attachment #4**).
- On Day 2, students who are ready may create a triple decimal number line by adding a third line for thousandths. The teacher will provide these students with extra decimal cards to locate 0.019, 0.165, 0.695, and 0.352.
- On Day 3, students may measure objects using the millimeter unit in addition to the meter, decimeter, and centimeter units. Students may use the millimeter measurement and the meter measurement for shorter objects.

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| <ul style="list-style-type: none">• The teacher may provide adding machine paper for students that struggle with determining decimal values to the tenths and hundredths. The teacher will ask students to write all decimals between 0 and 1 in tenths on a number line using adding machine paper about 36 inches long. The teacher will instruct students to draw this number line using 3 inches to represent each decimal from 0 to 1 (0.0, 0.1, 0.2, 0.3, and so on to 0.9, 1.0). The teacher will then guide students to fill in this number line and label decimals from 0 to 1 in hundredths. The teacher will then guide students through comparing decimals she calls out that are on the number line they drew and labeled. The teacher may use the following decimals: 0.62, 0.81, 0.2, 0.73, 0.22, and 0.09. | <ul style="list-style-type: none">• Students may use Engraved Decimal Tiles to explore numbers written in decimal notation along with the Fraction Tiles to explore numbers written in fraction notation <i>in other forms than 10 and 100 as a denominator</i>. See the example below. |
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Top Snapshot: Engraved Decimal Tiles -and-
Bottom Snapshot: Fraction Tiles
purchased from www.EAeducation.com

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Performance Based Assessment Task

Cell Phone Plans

It is time for McKinley to purchase a new cell phone. With so many new phones and so many companies, McKinley has a lot to consider before she purchases her phone. Read all the information she has gathered below and help her decide which plan is best! Rank the three plans according to which you think is the best deal and be prepared to defend your thinking! Use math words, numbers, models, and symbols to explain your thinking!

McKinley's Usual Phone Usage Per Month

- 300 minutes of talk time
- 200 texts
- 200 megabytes of data

Phone Company	Monthly Fee	Talk Time	Texts	Data Usage
Cecelia's Cells	\$30	200 minutes free (2/10 of a dollar per minute after that)	100 texts free (10 texts per dollar after that)	50 megabytes free (2/100 of a dollar per megabyte after that)
Matt's Mobiles	None	5/100 of a dollar per minute	25/100 of a dollar per text	1/10 of a dollar per megabyte
Phyllis's Phones	\$ 15	200 minutes free (1/10 of a dollar per minute after that)	150 texts free (2/10 of a dollar per text after that)	150 megabytes free (2/10 of a dollar after that)

Source: www.georgiastandards.org

Rubric/Plausible Answers

The student completes the task using math words, numbers, models, and symbols to explain the amount each plan will cost according to the information given. The student accurately finds the amount each plan will cost, ranks them, and gives a viable argument for the plan he/she chooses to be the best. *(This explanation gives criteria for correct student work.)* See Attachment #10, **Cell Phone Plans**.

Plausible Answer

The problem lists McKinley's typical monthly phone usage: 300 minutes of talk time, 200 texts, and 200 megabytes of data.

To compute the monthly bill for Cecelia's Cells, the student may begin with Column 2 at the **\$30 monthly fee**. Next is talk time and McKinley gets 200 minutes free and must pay 2/10 of a dollar per minute after that. $300 \text{ minutes} - 200 \text{ minutes} = 100 \text{ minutes extra to pay for}$. $100 \times 2/10 = 200/10 = \mathbf{\$20 \text{ for talk time per month}}$. *(Students are not required to multiply with decimal numbers in 4th grade but are to multiply a whole number and a fraction. Therefore, students should be able to multiply the whole number of extra phone usage by the fractional money amount.)* Texts are next and McKinley gets 100 texts free and must pay a dollar for every 10 texts

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after that. $200 - 100 = 100$ texts per month to pay for. $100 \times 1/10 = 100/10 =$ **\$10 for texts per month**. Data usage is next. McKinley gets 50 megabytes free per month and must pay $2/100$ of a dollar per megabyte after that. $200 - 50 = 150$ megabytes extra to pay for. $150 \times 2/100 = 300/100 =$ **\$3 for megabytes of data per month** to pay for.

Cecelia's Cells: \$30 monthly fee + \$20 talk time + \$10 texts + \$3 data = **\$63 per month**.

To compute the monthly bill for Matt's Mobiles, the student may begin with Column 2 at the **\$0 monthly fee**. Next is talk time and McKinley gets no minutes free and must pay $5/100$ of a dollar per minute. $300 \times 5/100 = 1500/100 =$ **\$15 for talk time per month**. Texts are next and McKinley gets no texts free and must pay $25/100$ of a dollar per text. $200 \times 25/100 = 5000/100 =$ **\$50 for texts per month**. Data usage is next. McKinley gets no megabytes free per month and must pay $1/10$ of a dollar per megabyte. $200 \times 1/10 = 200/10 =$ **\$20 for megabytes of data per month** to pay for.

Matt's Mobiles: \$0 monthly fee + \$15 talk time + \$50 texts + \$20 data = **\$85 per month**.

To compute the monthly bill for Phyllis's Phones, the student may begin with Column 2 at the **\$15 monthly fee**. Next is talk time and McKinley gets 200 minutes free and must pay $1/10$ of a dollar per minute after that. $300 - 200 = 100$ minutes extra to pay for. $100 \times$

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$1/10 = 100/10 = \mathbf{\$10}$ for talk time per month. Texts are next and McKinley gets 150 texts free and must pay $2/10$ of a dollar per text after that. $200 - 150 = 50$ texts per month to pay for. $50 \times 2/10 = 100/10 = \mathbf{\$10}$ for texts per month. Data usage is next. McKinley gets 150 megabytes free and must pay $2/10$ of a dollar after that. $200 - 150 = 50$ megabytes extra to pay for. $50 \times 2/10 = 100/10 = \mathbf{\$10}$ for megabytes of data per month to pay for.

Phyllis's Phones: \$15 monthly fee + \$10 talk time + \$10 texts + \$10 data = **\$45 per month.**

The best plan is Phyllis's Phones because it costs less than the others. $\$45 < \$63 < \$85$

If McKinley continues to use the usual amounts of talk time, texts, and data, Phyllis's Phones would be the best buy. She can save money on this plan.

She saves \$40 per month when comparing Phyllis's Phones with Matt's Mobiles.

She saves \$18 per month when comparing Phyllis's Phones with Cecelia's Cells.

Rubric

Total points for this task: **100 points**

This part is worth **40 points:**

- (1) Student uses math words, numbers, models, and/or symbols in detail and accurately to show his/her work—40 points.

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- (2) Student uses math words, numbers, models, and/or symbols accurately to show his/her work—30 points.
- (3) Student uses some math words, numbers, models, and/or symbols to show his/her work—20 points.
- (4) Student uses few math words, numbers, models, and/or symbols to show his/her work—10 points.

This part is worth **30 points**:

- 1. Student answers all 3 phone plans with the correct numerical answer—30 points.
- 2. Student answers 2 out of the 3 phone plans correctly—20 points.
- 3. Student answers 1 out of the 3 phone plans correctly—10 points.
- 4. Student answers 0 out of the 3 phone plans correctly—0 points.

This part is worth **30 points**:

- 1. The student ranks the plans correctly and gives a viable argument for his/her choice—30 points.
- 2. The student ranks the plans correctly but only gives a partial explanation of why he/she chooses a certain plan—20 points.
- 3. The student ranks the plans correctly but gives no explanation—10 points.
- 4. Student ranks the plan incorrectly and has no explanation or explanation is incorrect—0 points.



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Lesson Plan Attachments

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Expression Card Set

A1 $\frac{2}{10} + \frac{3}{10}$	A2 $\frac{8}{10} + \frac{2}{10}$
A3 $\frac{1}{5} + \frac{1}{5}$	A4 $\frac{9}{5} - \frac{2}{5}$
A5 $\frac{1}{10} + \frac{1}{10}$	A6 $\frac{10}{10} - \frac{4}{10}$
A7 $\frac{10}{5} - \frac{6}{5}$	A8 $\frac{148}{100} - \frac{38}{100}$
A9 $\frac{72}{100} - \frac{42}{100}$	A10 $\frac{17}{100} + \frac{53}{100}$



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Number Line Card Set

<p>F2</p>	<p>F1</p>
<p>F4</p>	<p>F3</p>
<p>F6</p>	<p>F5</p>
<p>F8</p>	<p>F7</p>
<p>F10</p>	<p>F9</p>



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Area Model Card Set

<p>G1</p>	<p>G2</p>
<p>G3</p>	<p>G4</p>
<p>G5</p>	<p>G6</p>
<p>G7</p>	<p>G8</p>
<p>G9</p>	<p>G10</p>

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Decimal Card Set

D1 <i>0.2</i>	D2 <i>0.6</i>
D3 <i>0.8</i>	D4 <i>1.0</i>
D5 <i>0.5</i>	D6 <i>1.1</i>
D7 <i>0.4</i>	D8 <i>1.4</i>
D9 <i>0.3</i>	D10 <i>0.7</i>

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Word Form Card Set

(Enrichment)

E1 five-tenths	E2 one
E3 two-tenths	E4 one and four-tenths
E5 three-tenths	E6 six-tenths
E7 eight-tenths	E8 one and one-tenth
E9 four-tenths	E1 seven-tenths



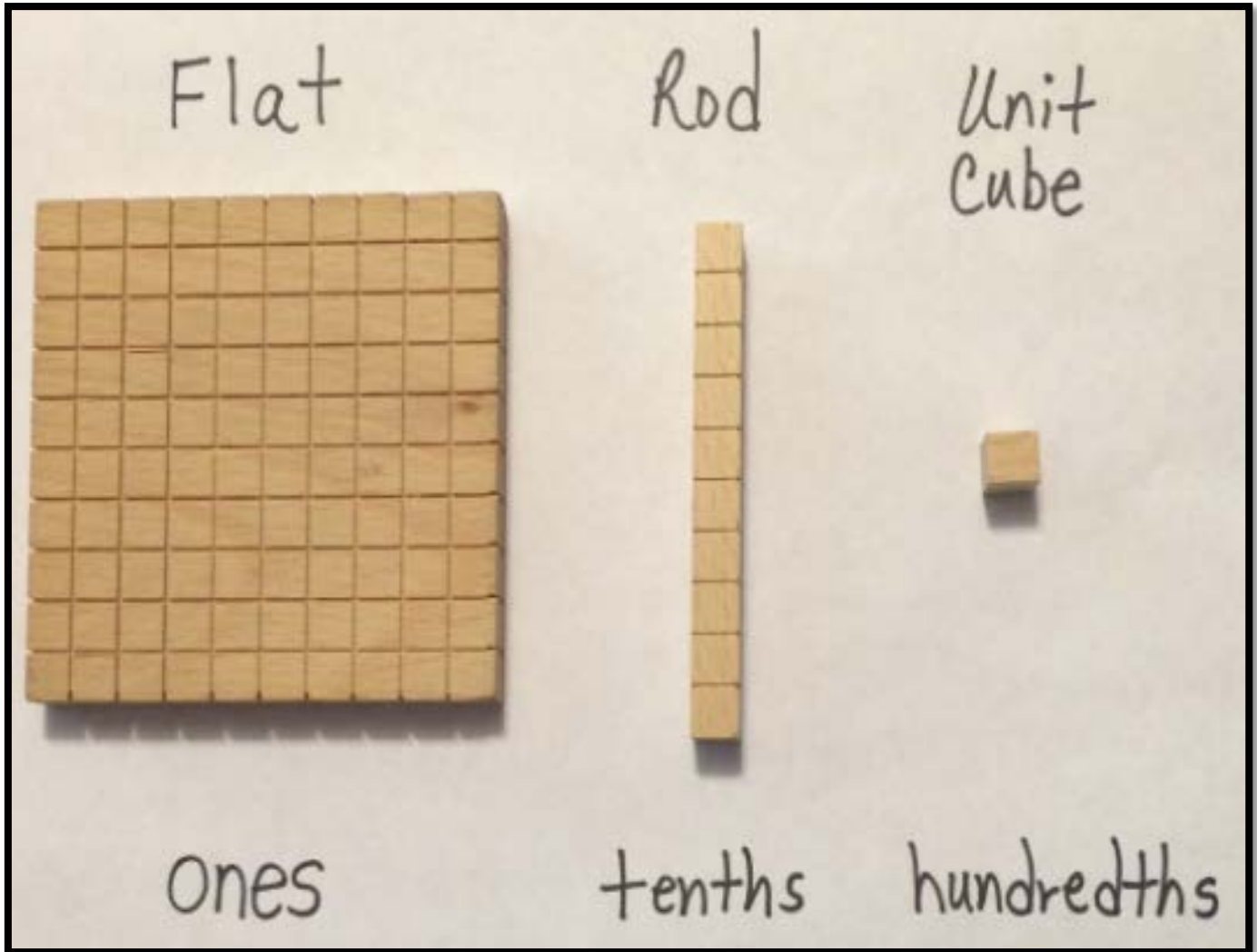
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Place Value Chart for Whole Numbers

Hundreds	Tens	Ones

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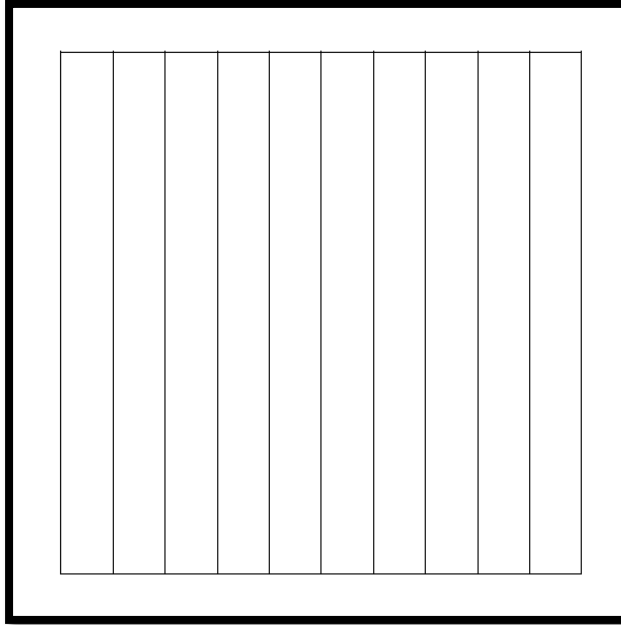
Model Base Ten Blocks



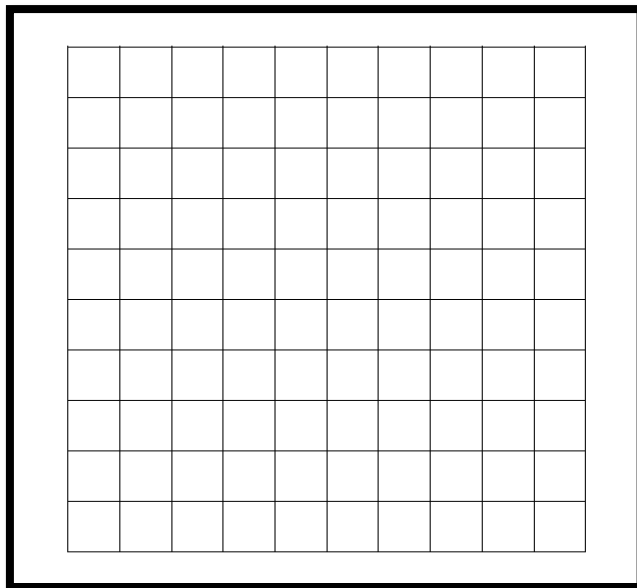
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Place Value Models

Tenths Square

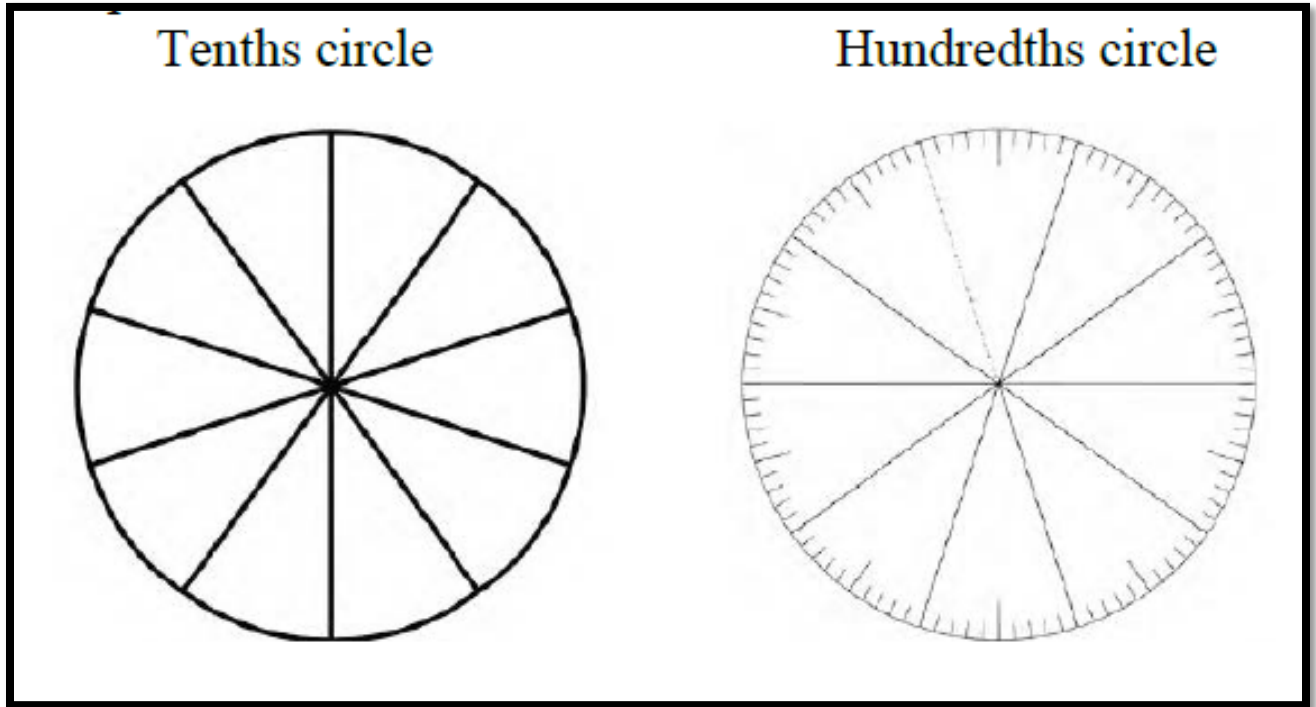


Hundredths Square



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Tenths and Hundredths Circles (Enrichment)



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Place Value Chart for Decimals

<i>Ones</i>	.	<i>Tenths</i>	<i>Hundredths</i>
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Money Picture





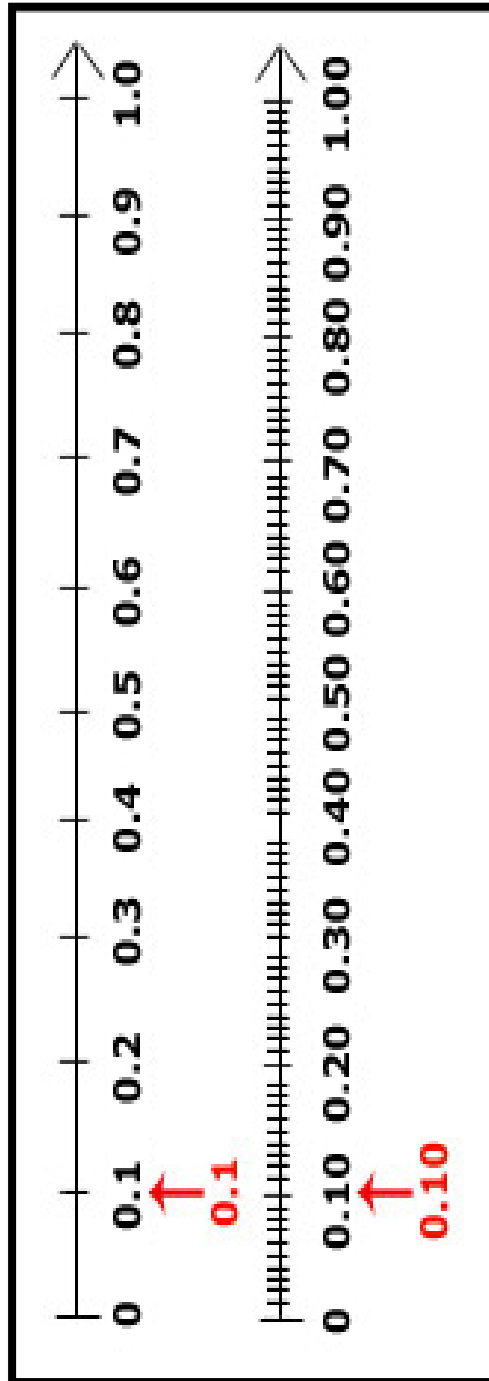
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Decimal Cards

0.1	0.7	0.3	0.5	0.6
0.8	0.2	1.0	0.9	0.4
0.0	0.0	1.0	0.23	0.56
0.45	0.46	0.99	0.60	0.34
0.29	0.40	0.75	0.50	0.11
0.10	0.86	0.89	0.79	0.80

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Double Number Line Diagram

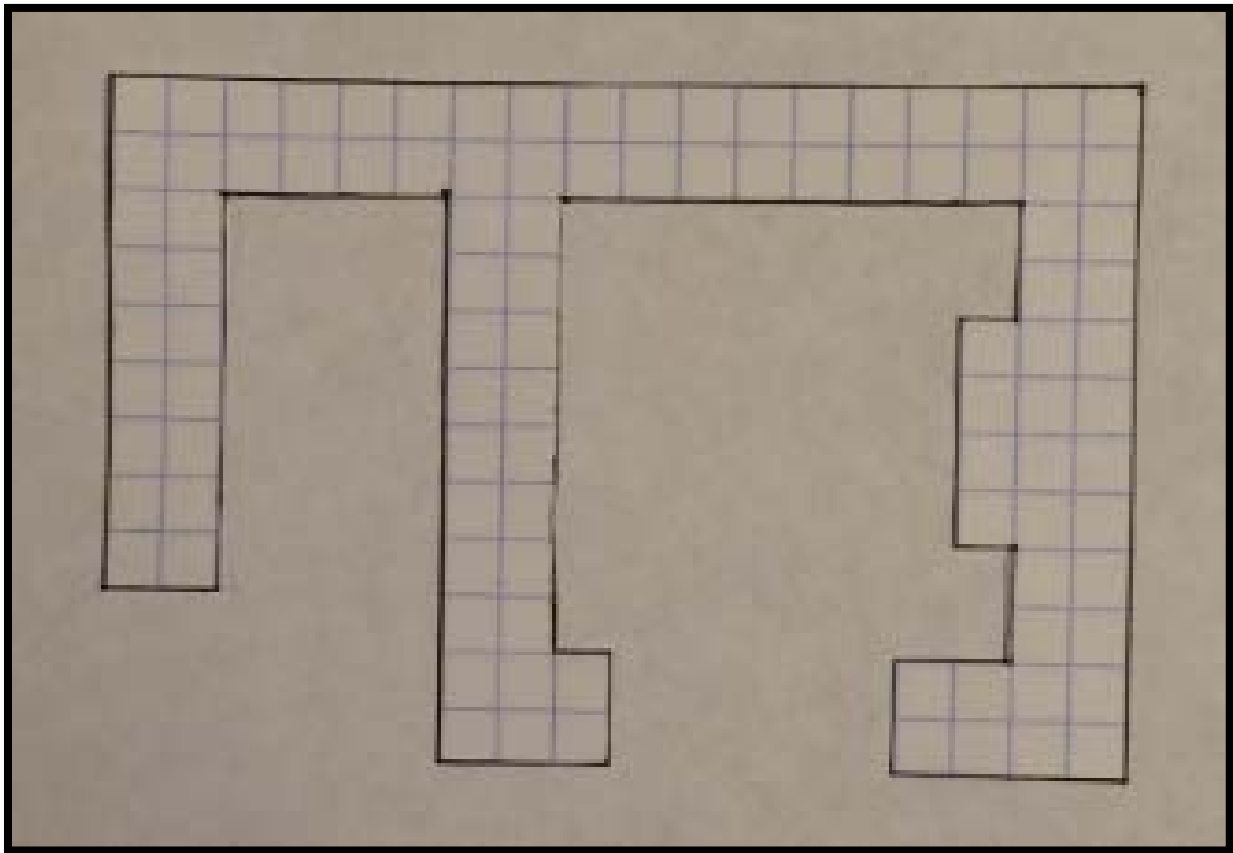


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Summer Camp Lookout Stations

Directions: For the four lookout stations for the summer camp program, determine which area each counselor will patrol. Use colored pencils to color code the specific area each counselor will be responsible for during the summer camp program. Use blank notebook paper to explain your reasoning. Compare the smallest area to the largest area giving an explanation of how you calculated your response. Create an inequality to represent the comparison.

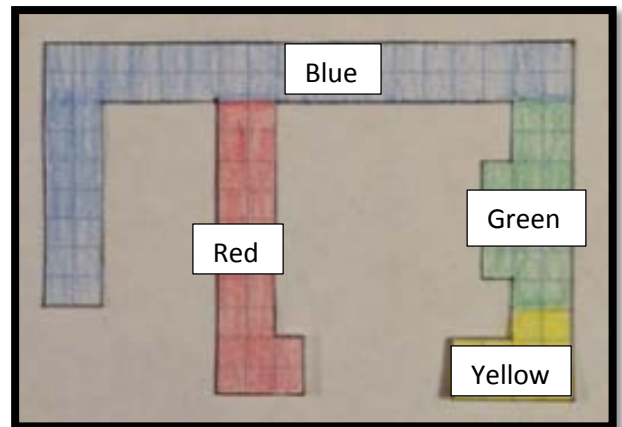
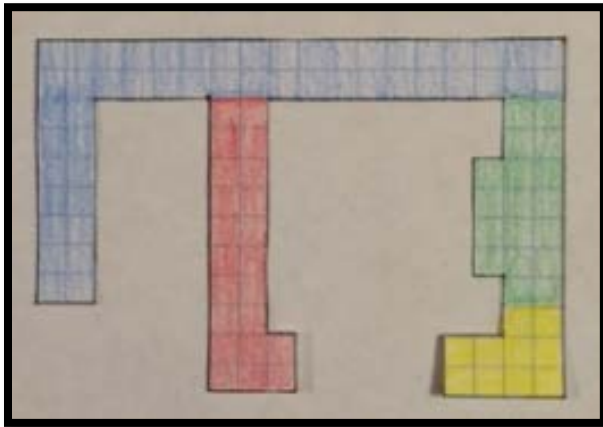
Station 1	Station 2	Station 3	Station 4
Mr. Taft	Ms. Season	Ms. Lilly	Mr. Mike
22/100	0.18	0.1	1/2
(Color red.)	(Color green.)	(Color yellow.)	(Color blue.)



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Summer Camp Lookout Stations Rubric

Total Points: 30



(One possible way to color in the stations is shown above. Accept all plausible answers.)

1. Student colors in 4 out of the 4 stations correctly—20 points.
Student colors in 3 out of the 4 stations correctly—15 points.
Student colors in 2 out of the 4 stations correctly—10 points.
Student colors in 1 out of the 4 stations correctly—5 points.
2. To explain the reasoning, students might say: “I color coded the stations the way I did because I wanted to make sure all corners could be patrolled.” Accept any reasonable/plausible explanations. The teacher will give 5 points for a plausible explanation that includes reasoning, and 2 points for an attempt to explain but with inaccurate reasoning.
3. To compare the largest area to the smallest area the student might say: “The largest area is Mr. Mike’s with $\frac{1}{2}$ or 50 out of 100 squares, and the smallest area is Ms. Lilly’s with 0.1 or 10 out of 100 squares. $\frac{1}{2} > 0.1$ ”
The teacher will award 5 points for a detailed explanation for the inequality provided.
The teacher will award 3 points for an explanation where the area is greater or less and the inequality provided. The teacher will award 1 point for the explanation or the inequality provided.

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Cell Phone Plans

It is time for McKinley to purchase a new cell phone. With so many new phones and so many companies, McKinley has a lot to consider before she purchases her phone. Read all the information she has gathered below and help her decide which plan is best! Rank the three plans according to which you think is the best deal and be prepared to defend your thinking! Use math words, numbers, models, and symbols to explain your thinking!

McKinley's Usual Phone Usage Per Month

- 300 minutes of talk time
- 200 texts
- 200 megabytes of data

Phone Company	Monthly Fee	Talk Time	Texts	Data Usage
Cecelia's Cells	\$30	200 minutes free ($\frac{2}{10}$ of a dollar per minute after that)	100 texts free (10 texts per dollar after that)	50 megabytes free ($\frac{2}{100}$ of a dollar per megabyte after that)
Matt's Mobiles	None	$\frac{5}{100}$ of a dollar per minute	$\frac{25}{100}$ of a dollar per text	$\frac{1}{10}$ of a dollar per megabyte
Phyllis's Phones	\$ 15	200 minutes free ($\frac{1}{10}$ of a dollar per minute after that)	150 texts free ($\frac{2}{10}$ of a dollar per text after that)	150 megabytes free ($\frac{2}{10}$ of a dollar after that)