

4th Grade Print & Google Slides

Drawing a Floor Plan Version 2, page 5

Your next step is to create a floor plan. It will help you find the area and perimeter of the room. Each square on the floor plan represents one square foot. The window shown on the floor plan is 3 feet wide and 4 feet high. Your task is to draw a floor plan for a bedroom that is 12 feet wide and 15 feet high. The location of the closet is shown on the floor plan. The closet is 3 feet wide and 5 feet high. Your furniture items are listed below. Calculate how much money you will need to furnish your room. You must include the cost of the furniture and the carpet. Once you are done, place your floor plan in the envelope and label it.

Furnishings	Options	Cost
Bed	2	\$100.00
Desk	2	\$50.00
Bureau	2	\$50.00
Bookcase	2	\$50.00
Rug	2	\$50.00

Calculate how much money you will need to furnish your room. You must include the cost of the furniture and the carpet.

1800
- 1435.00
= 365.00

Furnishing your bedroom Version 2, page 4

Let's see if you have enough money to furnish your room. You must be sure the total cost of the furniture and the carpet is less than or equal to \$1800.00.

Finding area and perimeter of the footprint Version 2, page 1

Your first task is to determine the size and layout of the footprint of your room as seen from a bird's eye view (looking down on the room). Knowing the area and perimeter will help you answer the questions below to answer the questions.

1. What are the outside dimensions of the room?
 $2 + 3 + 5 + 3 + 2 = 15$
 $4\frac{1}{2} + 3 + 4\frac{1}{2} = 12$
 Both sides equal the same amount!
 Determine the total square footage of the room including the closet. Solve using an area model.

2. Now, you will find the perimeter of the living space. Do you think the perimeter of the living space will be the same as the measurement of the outside walls of the bedroom? Explain.

The closet is not a part of the available living space so it would be $15 + 12 + 11\frac{1}{2} \times 6 = 44.5$ living space

What is the perimeter of the bedroom living area?
 $15 + 12 + 11\frac{1}{2} + 6 = 44.5$ feet

Finding area and perimeter of usable space Version 2, Page 2

Now that you know the area and perimeter of your room, you are ready for the next step of the plan. You must calculate the area and perimeter of the room without the closet so you can place furniture. Show your steps.

1. To determine the area of the living space you can subtract the area of the closet from the total area of the room. That is the area of the bedroom without the closet space included? Show your steps.

2. Now, you will find the perimeter of the living space. Do you think the perimeter of the living space will be the same as the measurement of the outside walls of the bedroom? Explain.

The closet is not a part of the available living space so it would be $15 + 12 + 11\frac{1}{2} \times 6 = 44.5$ living space

What is the perimeter of the bedroom living area?
 $15 + 12 + 11\frac{1}{2} + 6 = 44.5$ feet

the total cost. You must be sure you have money paint and accessories.

Furnishings	Option #	Cost	Running Calculations
Bed			
Desk			
Bureau			
Bookcase			
Rug			

Calculate how much

Drawing a Floorplan

Version 2, page 5

Your next step is to create a floorplan of your room. It will help you find the best arrangement for furniture.

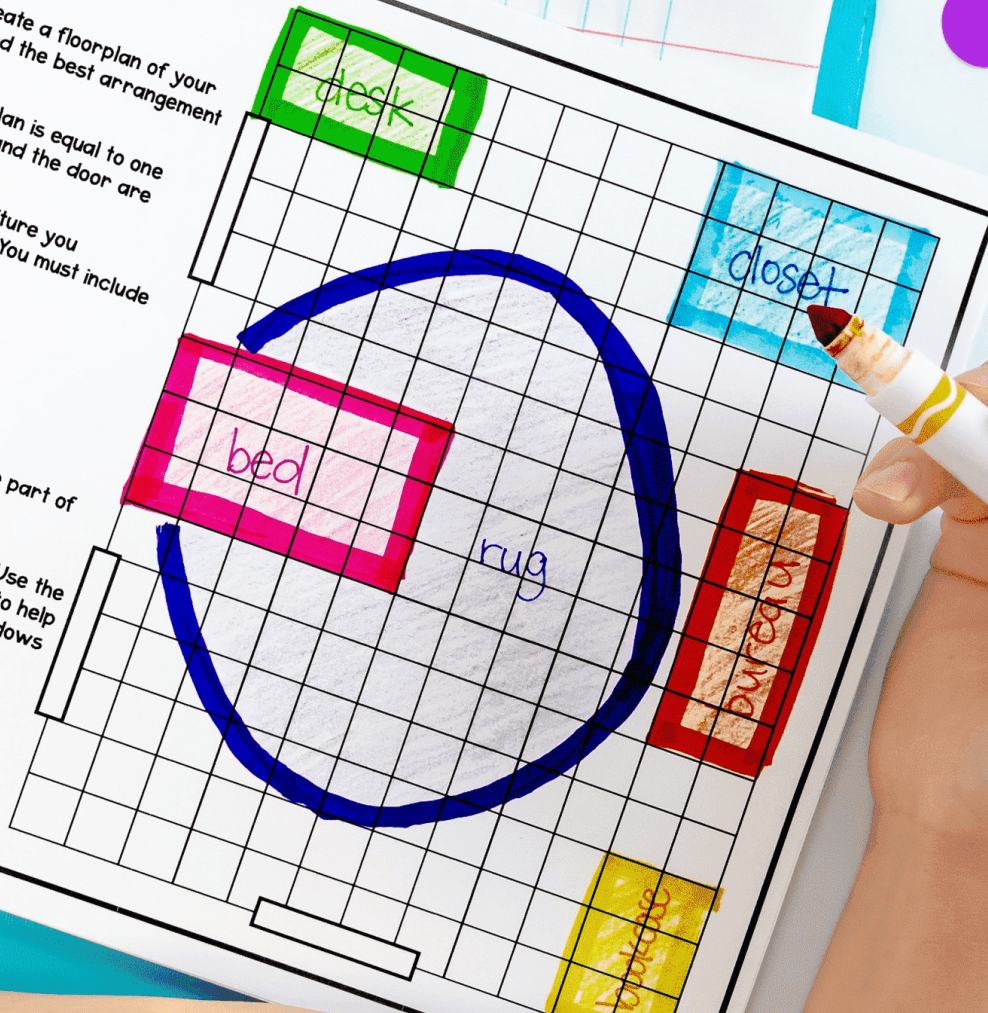
Each square on the floorplan is equal to one square foot. The windows and the door are shown on the floor plan.

Your task is to draw the furniture you purchased on the scaled map. You must include the location of:

- the closet
- your bed
- your desk
- your bureau
- bookcase and rug (if they are part of your plan)

Your furnishings must be drawn to scale Use the measurements from the information page to help you. No furniture can be put in front of windows or the door.

Once you are happy with where you have placed your furnishings, shade or color them. Add a label for each item you draw.



Furnishing your bedroom

Let's see if you have enough money to purchase the furnishings you picked out. Complete the table below and calculate the total cost. You must be sure you have money left to purchase paint and accessories.

Furnishings	Option #	Cost	Running Calculations
Bed	2	364.99	1,435.01
Desk	2	277.50	1,157.51
Bureau	1	265.97	891.54
Bookcase	N/A	185.32	706.22
Rug	N/A		

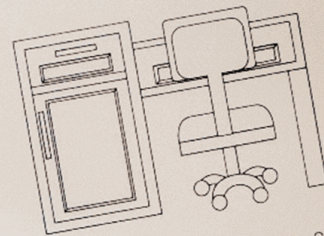
Calculate how much money you have left to spend on paint and accessories.

$$\begin{array}{r} 1800 \\ - 1435.01 \\ \hline \end{array}$$

Version 2, page 4

Total Cost for
Furnishings

\$1,093.10



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Drawing a Floorplan

Version 2, page 5

Your next step is to create a floorplan of your room. It will help you find the best arrangement for furniture.

Each square on the floorplan is equal to one square foot. The windows and the door are shown on the floor plan.

Your task is to draw the furniture purchased on the scale and the location of the furniture.



Furnishing your bedroom

Your parents have given you a budget of \$1800 to furnish your bedroom. You must decide which pieces of furniture to purchase. There are options for your bed, desk and bureau. You must select one piece from each group. The bookcase and rug are optional. Review the furniture options, the measurements and the prices below. Drag a checkmark to the items you want to purchase. ✓

beds



Bed option 1
3' wide by 6' long
\$255.50

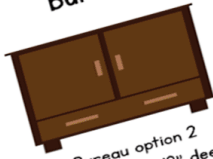


Bed option 2
5' 6" wide by 6' long
\$364.99

bureau



Bureau option 1
2' 6" wide by 2' deep
\$265.97



Bureau option 2
5' 6" wide by 18" deep
\$310.75



Bureau option 3
3' 6" wide by 30" deep
\$295.01



Desk option 1
3' 6" wide by 2' deep
\$198.25



Desk option 2
4' 6" wide by 18" deep
\$277.50



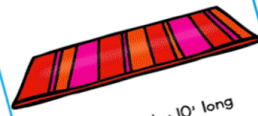
Desk option 3
4' wide by 15" deep
\$212.09

bookcase



3' wide by 2' deep
\$185.32

rug



8' 6" wide by 10' long
\$225.84

Version 2, page 3

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For the Teacher

Design, Create, Dream is a Project Based Learning packet that will provide your students a variety of engaging and fun math challenges using the theme of redecorating a bedroom. The following standards are addressed:

- 4.OA.A.3 Solve multistep word problems posed with whole numbers and having whole-number answers using the 4 operations, including problems with remainders.
- 4.NBT.A.2 Read and write multi-digit whole numbers using base ten numerals.
- 4.NBT.A.3 Use place value understanding to round multi-digit whole numbers to any place.
- 4.NBT.B.4 Fluently add and subtract multi-digit whole numbers using the standard algorithm.
- 4.NBT.B.5 Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations.
- 4.MD.A.1 Know relative sizes of measurement units within one system of units.
- 4.MD.A.2 Use the 4 operations to solve word problems, including problems involving single fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as a number line that feature a measurement scale.
- 4.MD.A.3 Apply the area and perimeter formulas for rectangles in real world and mathematical problems.
- 4.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit. Solve problems involving addition and subtraction of fractions by using information presented in line plots.

Directions:

1. Decide if your class will complete the project as a whole group, in small groups or independently.
2. Copy packets and provide students with materials necessary to complete the packet.
3. Students should complete the project over several days.
4. Preview the activity with your students.
5. Challenge activities can be assigned or can be optional.
6. Students will complete the self-evaluation reflection rubric.
7. Allow students an opportunity to share their completed projects.

Design, Create, Dream

Your parents have agreed that it is time to redecorate your bedroom. They are allowing you to take a big part in the design and the work it will take to transform your bedroom into a super exciting space just for you!

Here are your tasks:

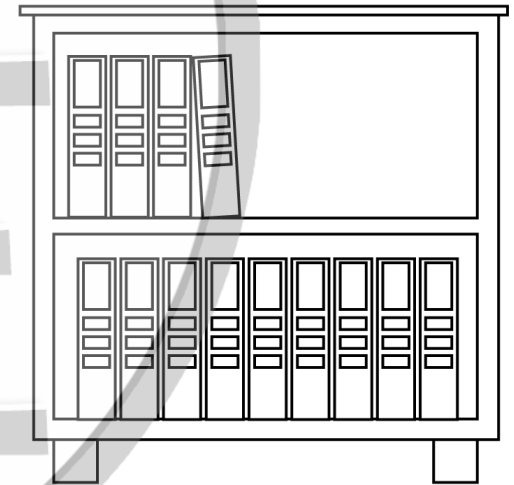
- Read through the entire packet before beginning.
- Read the informational slide about the work of interior designers.
- Work within a budget to furnish, paint and accessorize your room.
- Compare size and pricing for furniture.
- Place furnishings in the room using a scaled floorplan.
- Read and answer measurement and data word problems.
- Use data from a line plot to solve measurement problems.
- (Optional) Complete the challenge pages.
- Complete the self-reflection and evaluation rubric.

Design, Create, Dream

Name: _____

Have you ever heard of an interior designer? It is someone who plans, coordinates, and manages design projects inside homes or commercial buildings such as restaurants and doctors' offices. Interior designers go to school to learn how to work with clients and to best utilize different interior spaces. Once hired for a job, they work with clients to create and carry out a design plan. Clients share their preferences for style and needs for the use of the space. Then, the interior designer manages the job from start to finish.

For this task you are the interior designer assigned to redecorate your bedroom. You will begin by studying the measurements of the space. Your parents have given you a budget of \$1,800.00 to spend on furnishings, paint and accessories. You will be responsible for making decisions about purchases and furniture placement in your bedroom. You will also calculate cost for painting a feature wall. Finally, you will select accessories for your bedroom while staying within the budget you have been given.



So, put on your design hat and get started on your creative adventure!

Finding area and perimeter of the footprint

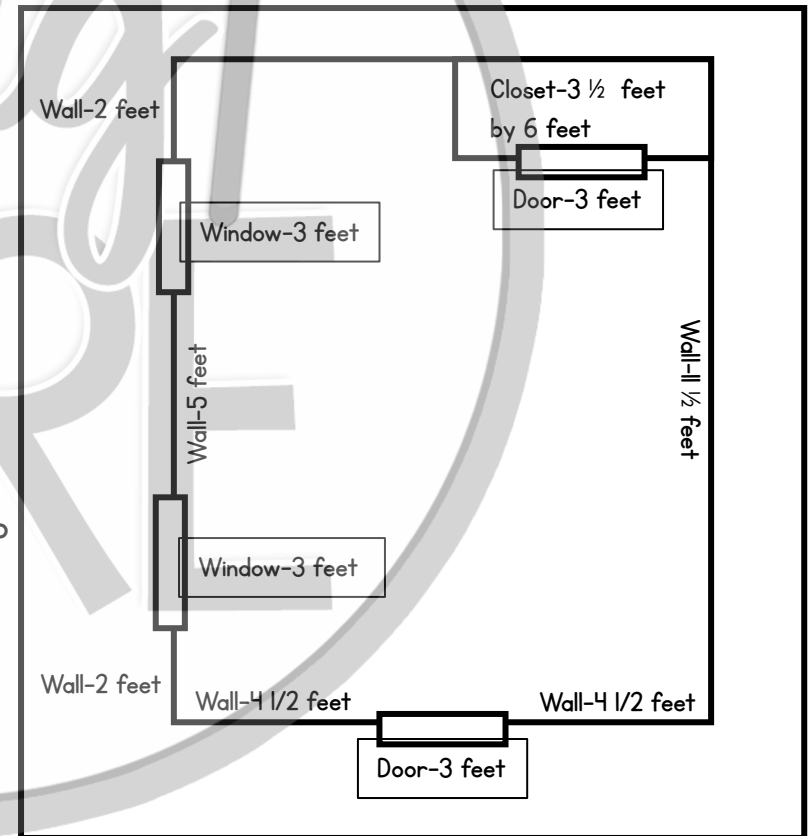
Version 2, page 1

Your first task is to determine the size and layout of the footprint of your bedroom. The footprint refers to the space of your room as seen from a bird's eye view (looking down into your room). Knowing the area and perimeter will help you create a plan for furniture and carpet placement. Use this information and the diagram below to answer the questions.

1. What are the outside dimensions of the room? Show how you know the length and the width are correct.

2. Determine the total square footage of the bedroom floor including the closet. Solve using an area model.

3. What is the perimeter of your room? Use the outside walls so that it includes the closet. Solve two different ways.



Furnishing your bedroom

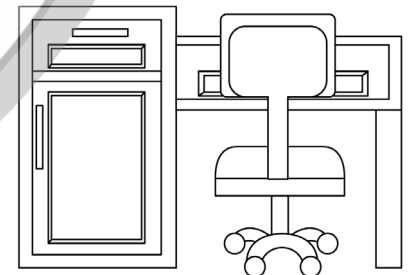
Version 2, page 4

Let's see if you have enough money to purchase the furnishings you picked out. Complete the table below and calculate the total cost. You must be sure you have money left to purchase paint and accessories.

Furnishings	Option #	Cost	Running Calculations
Bed			
Desk			
Bureau			
Bookcase	N/A		
Rug	N/A		

Total Cost for
Furnishings

Calculate how much money you have left to spend on paint and accessories.



Drawing a Floorplan

Version 2, page 5

Your next step is to create a floorplan of your room. It will help you find the best arrangement for furniture.

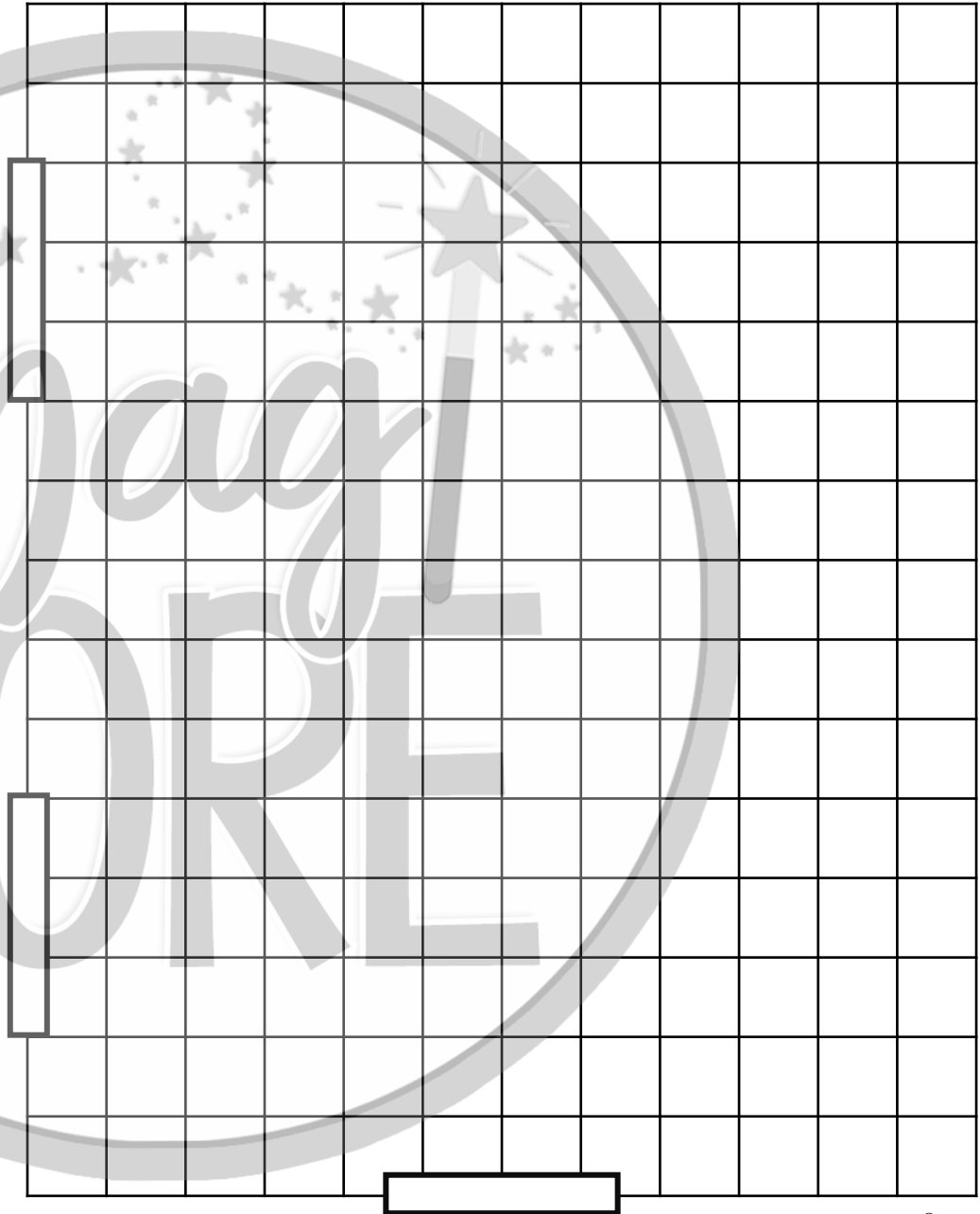
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- the closet
- your bed
- your desk
- your bureau
- bookcase and rug (if they are part of your plan)

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Once you are happy with where you have placed your furnishings, shade or color them. Add a label for each item you draw.



Finding the area of your feature wall

Version 2, page 8

You must decide on the type of paint for your feature wall. Read the table to learn about the cost and coverage of each type of paint. Then answer the questions.

Paint Finish	Cost per gallon	One gallon will cover
Glossy	\$32.25	100 square feet
Sparkle	\$35.99	75 square feet
Flat	\$27.55	215 square feet
Satin	\$29.75	195 square feet

1. Two coats of paint is recommended for the best coverage. How many square feet will you plan for in your design?
2. Determine the number of gallons needed to cover your wall with 2 coats for each type of paint. Complete the table.

	Glossy	Sparkle	Flat	Satin
Number of gallons				

3. Decide which paint you will use. How much will it cost to purchase enough paint for the feature wall?

<u>Paint Finish</u>	<u>Number of gallons</u>	<u>Cost per gallon</u>	<u>Total cost of paint</u>
<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>

Cost evaluation

Version 2, page 10

As the interior designer of this project, you must be sure you are staying within budget. Knowing how much money you have spent will allow you to continue planning for your bedroom re-design. Answer the questions below to be sure you are still within your budget before you begin purchasing accessories.

1. If you purchase all your choices for furnishings and paint, how much money will you be spending? Complete the table..

Total Cost for furnishings	
Total cost for paint	
Total cost	

2. Calculate how much money you have left to purchase accessories.

3. Your father asks you to round the cost of your furnishings to the nearest dollar. Complete the table to display your answers.

Furnishing	Cost	Rounded to nearest dollar
Bed		
Desk		
Bureau		
Bookcase		
Rug		

Buying wall-to-wall carpeting - Challenge I

Your grandmother said she will give you up to \$1000.00 to purchase new wall-to-wall carpeting. Your task is to read the table below and calculate how much it will cost for each type of carpeting. This will help you decide which carpeting you will purchase for your bedroom.

Type of carpeting	Berber	Loop	Plush	Textured
Cost per square foot	\$2.50	\$4.25	\$5.00	\$5.75
Total cost to carpet bedroom				

1. Calculate the area of your bedroom floor including the closet. How many square feet of carpeting do you need to cover the floor? Show with an equation.
2. Use an area model to show your calculation for the cost of one type of carpeting.



Design, Create, Dream

Name: _____

Self Reflection: Write a reflection of your experience with this project. How did you feel about the math problems and activities? Explain what you found easy to do and any difficulties you had while working on this project. Did you enjoy this activity? Why or why not?



Rate this project.

Circle the statement you most agree with.

I am ready for something harder

It was just right

I found this challenging

Design, Create, Dream

Name: _____

Self Reflection Rubric: Highlight or shade one box per row on the rubric that expresses how you rate yourself on this Project Based Learning Activity.

I felt very confident about the math in this project.	I felt pretty good about my ability to complete the math in this project.	I felt a lot of the math in this project was too hard for me to do alone.
I understood all of the math and did not need help to complete the problems.	I understand most of the math but needed a little help to solve some of the problems.	I understood some of the math but needed help to complete most of the problems.
I easily used many strategies to solve the math problems efficiently.	I needed some help to use the best strategies for solving the math problems.	I had trouble understanding the best way to solve many of the math problems.
I feel I am ready for a harder math project.	I feel I would like to spend more time practicing similar math problems.	I feel I need assistance to work on similar math problems

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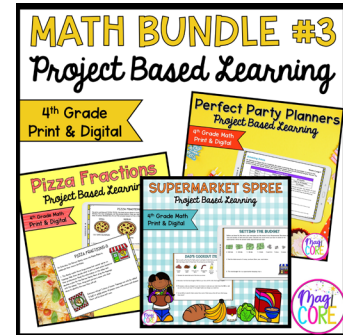
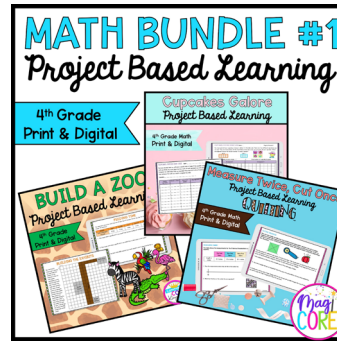
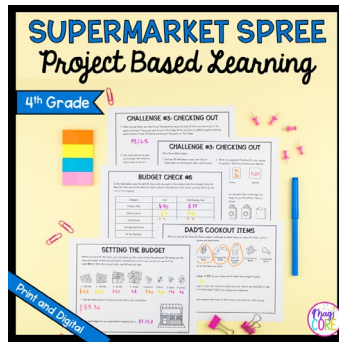


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