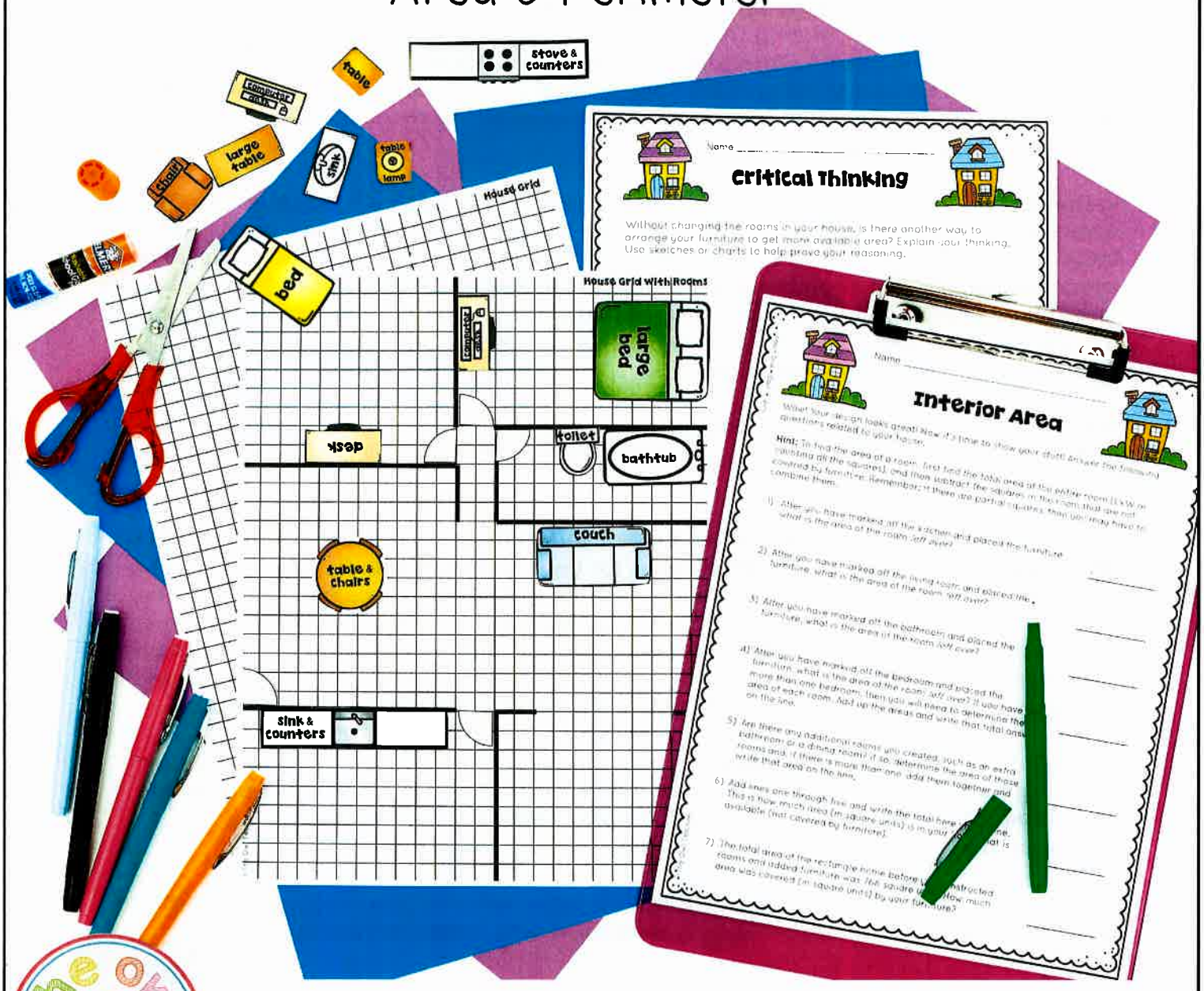
Applied Math

DESIGN A house

Area & Perimeter



PRINTABLE & DIGITAL

TWO OWL TEACHER

No requirements

Interior Designing

Purpose

You will create a house within the rectangle grid and place furniture within it. Then, you will answer questions related to your design and area.

Directions

1.) Think about how you would like to break your house up into rooms. Of course, make sure it is logical. For example, all houses need a bathroom and a kitchen. Then, draw lines to represent the walls dividing up the rooms. You may need to adjust these as you progress, so keep them light.

This symbol indicates a door opening and the direction it swings. →

2.) Cut out all the furniture you plan to use in your house. Make sure you cut it nicely.

3.) Place the furniture inside each room as you would like it. Remember to think logically. For instance, you can't place a bed in front of a door, nor can you stack a TV on top of a bed. Remember, furniture cannot go through walls.

4.) Once you have all your furniture where you would like it, answer the questions on the question sheet.

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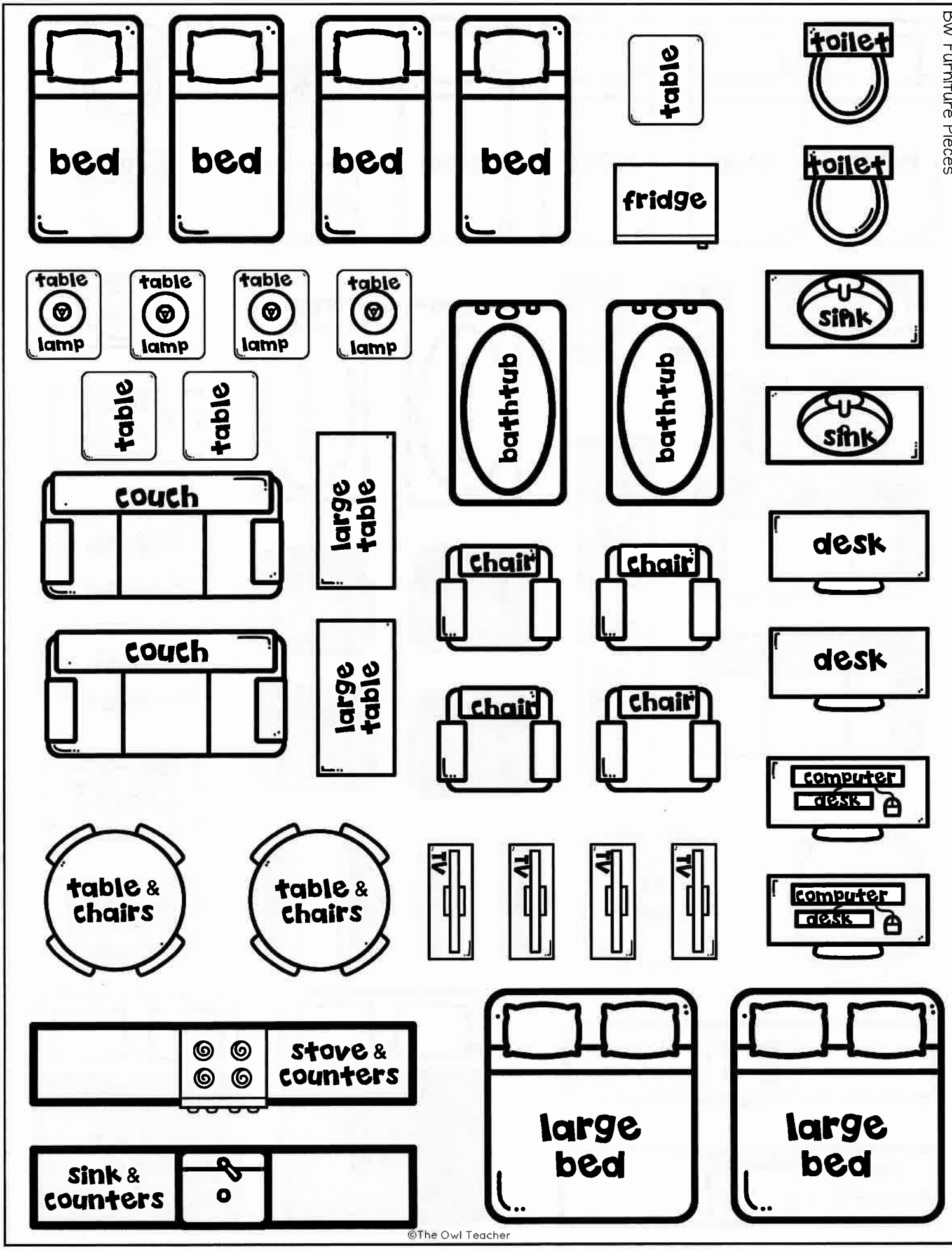

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House Grid

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Name _____

Interior Area

Wow! Your design looks great! Now it's time to show your stuff! Answer the following questions related to your house.

Hint: To find the area of a room, first find the total area of the entire room (LxW or counting all the squares), and then subtract the squares in the room that are not covered by furniture. Remember: If there are partial squares, then you may have to combine them.

1) After you have marked off the kitchen and placed the furniture, what is the area of the room *left over*? _____

2) After you have marked off the living room and placed the furniture, what is the area of the room *left over*? _____

3) After you have marked off the bathroom and placed the furniture, what is the area of the room *left over*? _____

4) After you have marked off the bedroom and placed the furniture, what is the area of the room *left over*? If you have more than one bedroom, then you will need to determine the area of each room. Add up the areas and write that total answer on the line. _____

5) Are there any additional rooms you created, such as an extra bathroom or a dining room? If so, determine the area of those rooms and, if there is more than one, add them together and write that area on the line. _____

6) Add lines one through five and write the total here on this line. This is how much area (n square units) is in your house that is available (not covered by furniture). _____

7) The total area of the rectangle home before you constructed rooms and added furniture was 768 square units. How much area was covered (in scuare units) by your furniture? _____

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Name _____

Interior Area

Wow! Your design looks great! Now it's time to show your stuff! Answer the following questions related to your house.

Hint: To find the area of a room, first find the total area of the entire room (LxW or counting all the squares), and then subtract the squares in the room that are not covered by furniture. Remember: If there are partial squares, then you may have to combine them.

1) After you have marked off the kitchen and placed the furniture, what is the area of the room *left over*? _____

2) After you have marked off the living room and placed the furniture, what is the area of the room *left over*? _____

3) After you have marked off the bathroom and placed the furniture, what is the area of the room *left over*? _____

4) After you have marked off the bedroom and placed the furniture, what is the area of the room *left over*? If you have more than one bedroom, then you will need to determine the area of each room. Add up the areas and write that total answer on the line. _____

5) Are there any additional rooms you created, such as an extra bathroom or a dining room? If so, determine the area of those rooms and, if there is more than one, add them together and write that area on the line. _____

6) Add lines one through five and write the total here on this line. This is how much area (in square meters) is in your house that is available (not covered by furniture). _____

7) The total area of the rectangle home before you constructed rooms and added furniture was 768 square meters. How much area was covered (in square meters) by your furniture? _____

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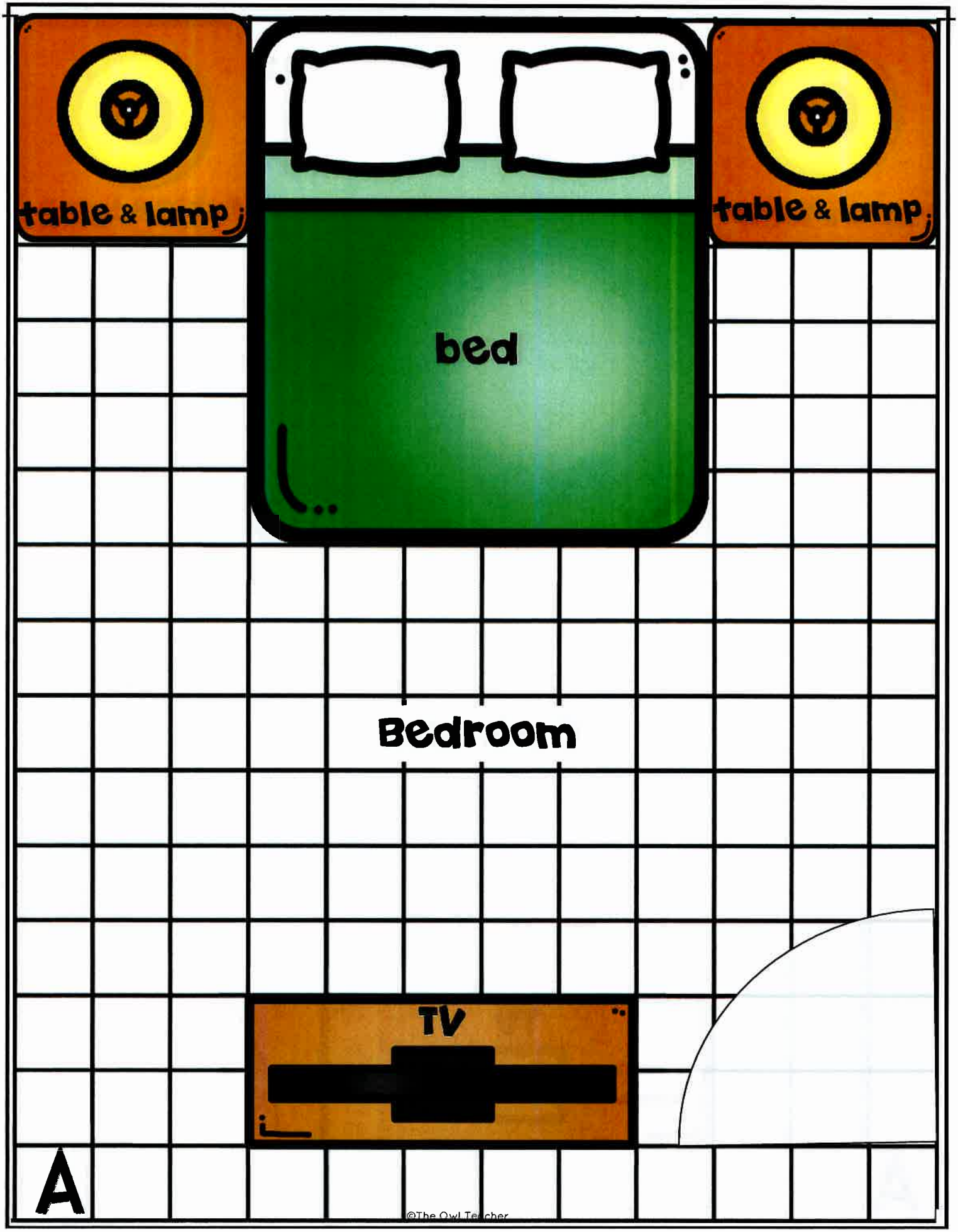

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Name _____

Exploring More

Determine the perimeter of each piece of furniture listed below. Write the perimeter in the first box. Then, determine the area of the piece of furniture. Write it in the second box. Then, answer the questions below.

Furniture	Perimeter	Area	Furniture	Perimeter	Area
small bed			TV		
big bed			toilet		
desk			bathtub		
computer & desk			sink & counters		
table & lamp			stove & counters		
couch			table & chairs		
chair			large table		
table			fridge		

1) What is the total perimeter of the furniture? (Add all the perimeters up.) _____

2) What is the total perimeter of the house? _____

3) What was the total area of the furniture? _____

4) How would you find the area of each of your rooms without furniture?

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Name _____

Interior Area

Directions

Answer the following questions related to the room in house A. Remember, to find the area, you will need to count the squares. When you can't see the square, you will have to estimate, and if it's part of a square, you may have to combine it with another to make one whole.

1) What is the area of the bed? _____

2) What is the combined area of the two tables with lamps? _____

3) What is the combined area of all the furniture in the room? _____

4) The total area of the room is 192 u^2. How much area of the room is **NOT** covered by furniture? _____

5) Which piece of furniture has a greater area, the TV or the table & lamp? _____

6) How much larger is the area of the bed than the area of the TV? _____

7) What is the perimeter of the bed? _____

8) How much smaller is the perimeter of the table & lamp than the perimeter of the TV? _____

9) What is the perimeter of the room? _____

10) Is there room to place a chest at the foot of the bed with an area of 10 u^2 and a perimeter of 16 u? How do you know?

A

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House A * Meters

Name _____

Interior Area

Directions

Answer the following questions related to the room in house A. Remember, to find the area, you will need to count the squares. When you can't see the square, you will have to estimate, and if it's part of a square, you may have to combine it with another to make one whole.

1) What is the area of the bed? _____

2) What is the combined crea of the two tables with lamps? _____

3) What is the combined area of all the furniture in the room? _____

4) The total area of the room is 192 m^2. How much area of the room is **NOT** covered by furniture? _____

5) Which piece of furniture has a greater area, the TV or the table & lamp? _____

6) How much larger is the area of the bed than the area of the TV? _____

7) What is the perimeter of the bed? _____

8) How much smaller is the perimeter of the table & lamp than the perimeter of the TV? _____

9) What is the perimeter of the room? _____

10) Is there room to place a chest at the foot of the bed with an area of 10 m^2 and a perimeter of 16 m? How do you know?

A

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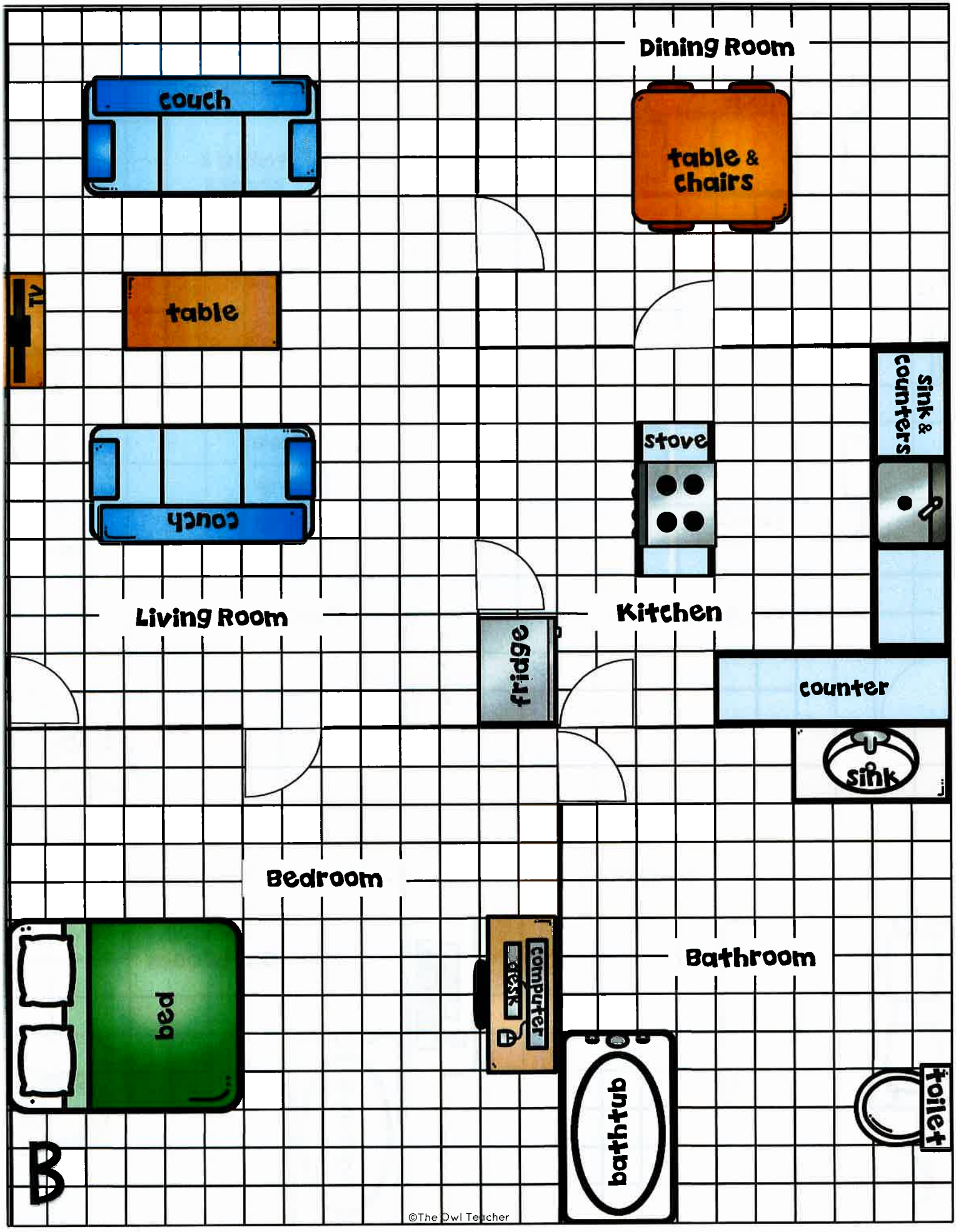
Dining Room
couch
table & chairs
TV
table
sink & counters
stove
couch
Living Room
Kitchen
fridge
counter
sink
Bedroom
bed
computer
desk
Bathroom
bathtub
toilet
B
©The Owl Teacher

Name _____

Interior Area

Directions

Answer the following questions related to house B. Remember, to find the area, you will need to count the squares. When you can't see the square, you will have to estimate, and if it's part of a square, you may have to combine it with another to make one whole.

1) Which room has the largest area? _____

2) What is the combined area of the dining room and the kitchen? _____

3) Which piece of furniture in the house has the least amount of area? _____

4) How much larger is the area of the bed than the area of the table & chairs? _____

5) How much smaller is the area of bathroom than the area of the living room? _____

6) What is the combined crea of all the furniture in the living room? _____

7) What is the perimeter of the table & chairs? _____

8) How much larger is the perimeter of the bed than the perimeter of the couch? _____

9) What is the perimeter of the living room AND the dining room combined? _____

10) Write your own area and perimeter problem here. Remember to include a solution.

B

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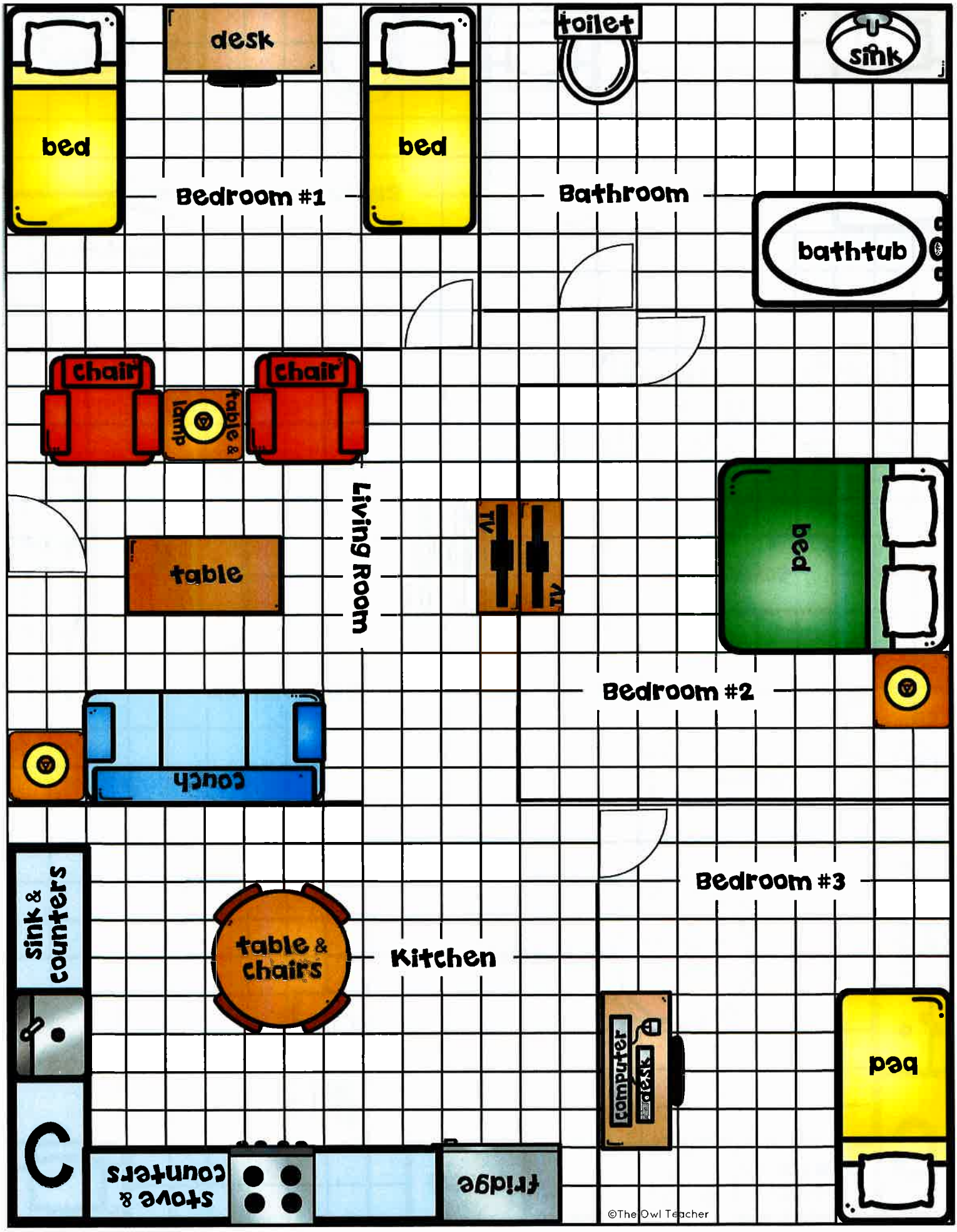
desk
bed
bed
Bedroom #1
toilet
sink
Bathroom
bathtub
chair
chair
table & lamp
Living Room
table
TV
TV
bed
Bedroom #2
couch
sink & counters
table & chairs
Kitchen
Bedroom #3
computer
desk
bed
stove & counters
fridge
©The Owl Teacher

Name _____

Interior Area

Directions

Answer the following questions related to house C. Remember, to find the area, you will need to count the squares. When you can't see the square, you will have to estimate, and if it's part of a square, you may have to combine it with another to make one whole.

1) Which room has the largest area? _____

2) What is the combined area of all three bedrooms? _____

3) Which room in the house has the least amount of area? _____

4) What is the combined area of all the furniture in the living room? _____

5) Which bedroom has the least amount of area? _____

6) What is the area of the **k**itchen **without** furniture (including counters & appliances)? _____

7) What is the perimeter of the kitchen? _____

8) What is the total combined perimeter of all beds in the house? _____

9) Which has the least perimeter, the chair or the bathroom sink? _____

10) Write your own area and perimeter problem here. Remember to include a solution.

C

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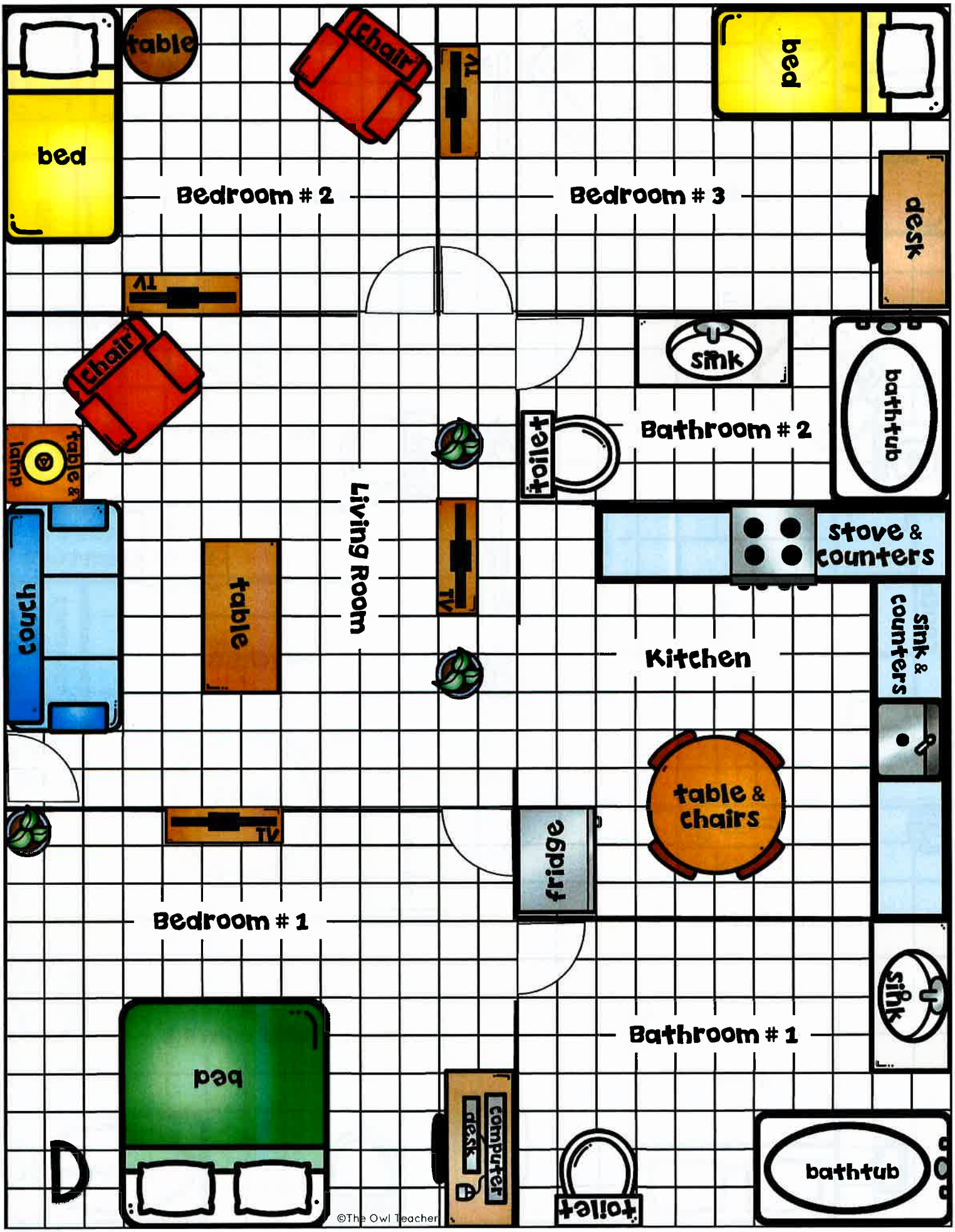
table
chair
TV
bed
bed
Bedroom # 2
Bedroom # 3
desk
TV
sink
bathtub
chair
table & lamp
toilet
Bathroom # 2
Living Room
stove & counters
couch
table
TV
sink & counters
Kitchen
table & chairs
TV
fridge
Bedroom # 1
bed
Bathroom # 1
sink
computer desk
toilet
bathtub
©The Owl Teacher

Name _____

Interior Area

Directions

Answer the following questions related to house D. Remember, to find the area, you will need to count the squcres. When you can't see the square, you will have to estimate, and if it's part of a square, you may have to combine it with another to make one whole.

1) Which room has the least amount of area? _____

2) What is the combined area of the two bathrooms? _____

3) How much more area coes the living room have than the kitchen? _____

4) What is the area of the chair in the living room? _____

5) What is the area of the available (no furniture) portion of bedroom #2? _____

6) Which has the least amount of area, the table & chairs or the bathtub? _____

7) What is the perimeter of the living room? _____

8) What is the total combined perimeter of all the tables (all sizes) in the house? (desks are not included) _____

9) Which has the most perimeter, the couch or the chair? What is the difference? _____

10) Write your own area and perimeter problem here. Remember to include a solution.

D

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Name _____

Design a House Rubric

	Points	Points	Points
Overall Quality	The project demonstrates excellent quality in terms of design, layout, and neatness.	The project demonstrates fair quality in terms of design, layout, and neatness.	The project demonstrates poor quality in terms of design, layout, and neatness.
Creativity	The student demonstrated creativity in the project.	The student demonstrated some creativity in the project.	The student demonstrated very little or no creativity in the project.
Requirements	The student met and followed all the requirements of the assigned project.	The student mostly met and followed the requirements of the assigned project.	The student did not meet and/or follow the requirements of the assigned project.
Math Accuracy	The math content was correct and free of errors.	The math content was mostly correct and free of errors.	Very little of the math content was correct and/or free of errors.
Understanding of Concepts	The student demonstrated an understanding of all math concepts applied.	The student demonstrated an understanding of most math concepts applied.	The student demonstrated very little understanding of the math concepts applied.

Comments:

Total Points:

_____ / _____

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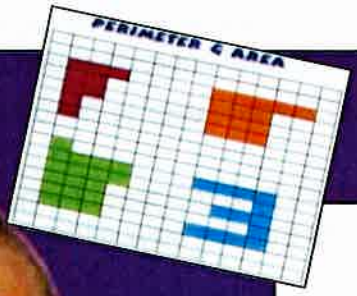
3rd GRADE

MEASUREMENT

AREA & PERIMETER

Enrichment Projects



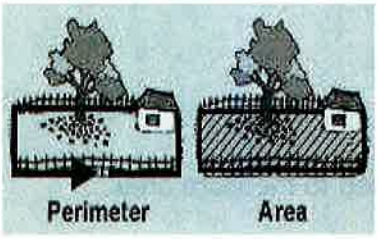
Nine No-Prep Area and Perimeter Projects that Students Love!

By Gina Kennedy

CCSS.Math.Content.3.MD.C.5, CCSS.Math.Content.3.MD.C.5a, CCSS.Math.Content.3.MD.C.5b, CCSS.Math.Content.3.MD.C.6, CCSS.Math.Content.3.MD.C.7, CCSS.Math.Content.3.MD.C.7a, CCSS.Math.Content.3.MD.C.7b, CCSS.Math.Content.3.MD.C.7c, CCSS.Math.Content.3.MD.C.7d, CCSS.Math.Content.3.MD.D.8

3rd Grade Area and Perimeter Measurement Projects

Name: Due Date:

Use graph paper to design the **"Ultimate Playground"** for your principal. Outline the area of your entire playground. Withir the playground, outline where you will place four pieces of playground equipment. Calculate the area of your playground's total land and label the area at the top of your playground outline. Then label the area of each individual playground equipment next to it on the map. Add more details if you like. Make your **"Ultimate Playground"** outline creative and neat.	**EXTRA CHALLENGE:** Create a robot with 12 rectangles. The area of each rectangle on the robot should be: **36", 12", 12", 24", 24", 6", 6", 10", 20", 20", 14", and 14"** You must measure and cut out shapes that have each of the "area" measurements above. Once you have cut out all of your shapes; glue them on tag board to create your robot. You may decorate your robot when you have finished it.	Write your own version of "The Three Little Pigs". However, include several perimeter and area measurements in the story. **For example, "The first little pig lived in a house that was 8 feet x 8 feet and had an area of 64 feet.** Area and perimeter should be mentioned at least ten times in your story. Add an illustration to accompany your story.
Brainstorm and record at least twenty-five reasons you might have to measure perimeter and twenty-five reasons you might have to measure the area in real-life situations. Illustrate and color one reason for each list. 	Using graph paper to design the ultimate super hero. However; your superhero must be made ONLY out of five squares or rectangles with a total perimeter of 12 units, four squares or rectangles with a total area of 20 and four squares or rectangles with a total area or perimeter of 24. Place the area and perimeter measurement inside each rectangle. Arrange the shapes to create a super hero. Then decorate to add the final touches.	Gather five different textbooks, large books or novels from your classroom and measure the area and perimeter of each book. Write down your results and create two graphs to compare the differences between each book's area and perimeter.
Write a five page **"How To Measure Area and Perimeter"** book with many illustrations. In your book explain how to find the area of a shape that has an odd number of units such as five or seven by dividing the shape into two parts. Make your book neat and colorful.	Write a humorous five stanza rhyming poem describing how learning about area and perimeter measurements has made you a better person. Your poem must include two illustrations. Glue the poem and illustrations on a poster for a neat display.	Using a piece of graph paper from your teacher, illustrate a dog using exactly 150 square units; no more, no less. Color your dog.

Complete three projects in tic tac toe order.

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3rd Grade Area and Perimeter Project Rubric:

Projects include all of the required components..... 40 Points_____

Projects are neat and organized.....30 Points_____

Projects make mathematical sense.....20 Points_____

Projects completed on time.....10 Points_____

Total Possible..... .....100 Points_____

Student Name_____

Total Points _____

Grade_____

"Excellence is not being the best; it is doing your best."

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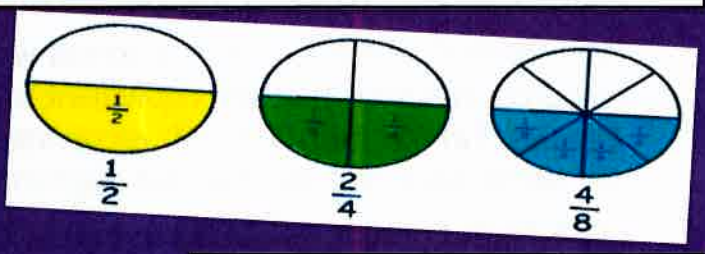
3rd GRADE

"Equivalent Fractions" and "Comparing Fractions"

Enrichment Projects



Nine No-Prep Fractions Projects that Students Love!

By Gina Kennedy

CCSS.Math.Content.3.NF.A.3, CCSS.Math.Content.3.NF.A.3a, CCSS.Math.Content.3.NF.A.3b, CCSS.Math.Content.3.NF.A.3c, CCSS.Math.Content.3.NF.A.3d

3rd Grade Equivalent and Comparing Fractions Enrichment Projects

Name: Due Date:

Choose your all time favorite candy bar and illustrate the candy bar five different times on five separate 8"x11" papers; and each time as a fraction equal to $\frac{1}{2}$ (such as $\frac{4}{8}$) . Label what fraction the candy bar represents and make your illustrations neat and in full color. 	Write two page story about the famous battle of the $\frac{1}{2}$ equivalent fractions friends who were bullying the $\frac{1}{4}$ equivalent fractions friends. Include two illustrations. Humor is welcome. 	Create an "equivalent fraction" worksheet for other students. Provide two fractions and have them decide if the first is less than, greater than or equal to the other one. Use symbols >, =, or <, to show their answer. For Example: $\frac{1}{4} \square \frac{1}{8}$ Include at least twenty fraction less than/greater than problems and create an answer key for your teacher.
Create a poster that explains why some fractions are equivalent (like $\frac{1}{2}$ and $\frac{3}{6}$) and how to find an equivalent fraction for any fraction. Use examples, directions and illustrations. Make sure the poster is attractive creative and neat.	Write a four stanza poem that discusses why it is important to know if one fraction is equal to, less than or greater than the other. Include how knowing the value of fractions can make someone's life better. Humor is welcome. Add two illustrations. Glue the poem and illustrations on a poster for better display.	Illustrate five different pizzas on a five separate 8"x11" pieces of paper. Each pizza should represent a different fraction equivalent to $\frac{1}{4}$. Label what fraction the pizza represents and make your illustrations neat and in full color. Each pizza should contain different ingredients on top.
Pretend you represent all the whole number fractions of the world such as $\frac{5}{5}$ or $\frac{6}{6}$. You will be giving a speech to all the **"less than whole"** fractions such as the: $\frac{1}{2}$'s or $\frac{1}{3}$'s. Write the one page speech you will use that explains why whole number fractions are more powerful and complete than the other fractions of the world. Humor is welcome.	Brainstorm and list 25 fractions that are equal to $\frac{1}{2}$, $\frac{1}{3}$ and $\frac{1}{4}$. (75 TOTAL). Good luck! $\frac{1}{4} = \frac{2}{8} = \frac{4}{16}$	Write a two page story about **the "Fabulous Fraction Family"**: ***The Baby: 1/8** ***The Oldest Daughter: 5/8** ***The Oldest Son: 6/8** ***The Middle Twins: 1/3 & 3/9 (Because they're equal of course.)** ***The Mother: 7/8** ***The Father: 8/8 or as he is nicknamed "1 Whole"** Write about all their adventures as they turn every situation into a fractions ordeal.

Complete three projects in tic tac toe order.

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3rd Grade Fractions (Equivalent and Comparing) Project Rubric:

Projects include all of the required components..... 40 Points_____

Projects are neat and organized.....30 Points_____

Projects make mathematical sense.....20 Points_____

Projects completed on time.....10 Points_____

Total Possible..... .....100 Points_____

Student Name_____

Total Points _____

Grade_____

"Excellence is not being the best; it is doing your best."

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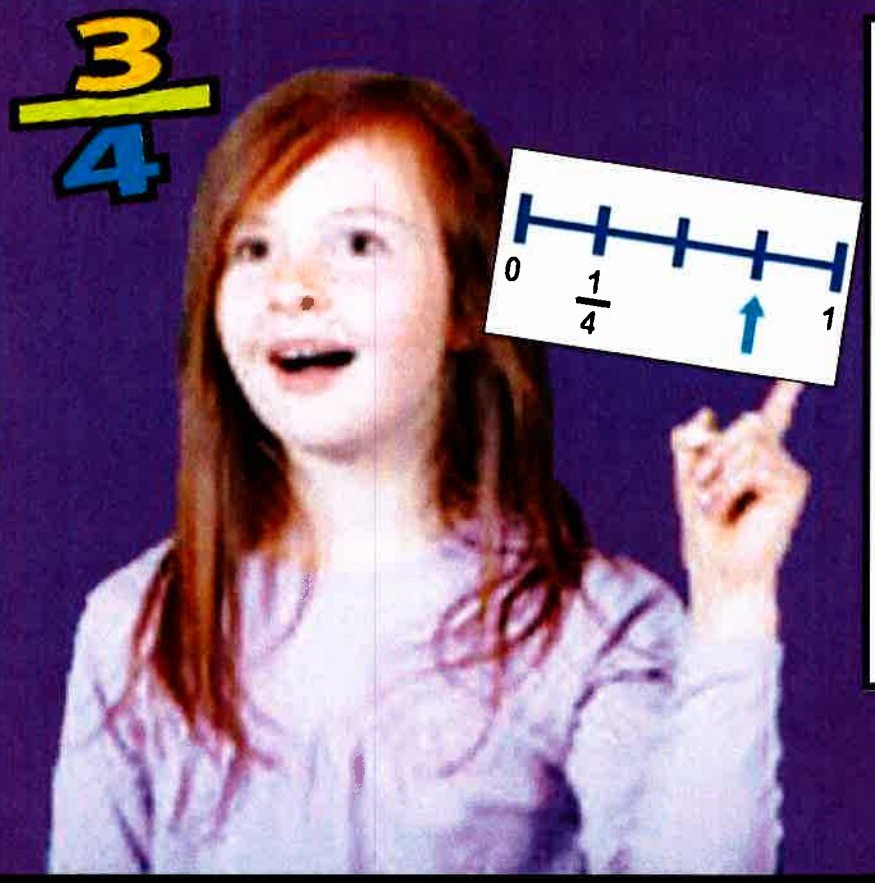
3rd GRADE "FRACTIONS AND NUMBER LINES" Enrichment Projects



Nine No-Prep Fractions and Number Lines Projects that Students Love!

By Gina Kennedy

CCSS.Math.Content.3.NF.A.1, CCSS.Math.Content.3.NF.A.2, CCSS.Math.Content.3.NF.A.2a, CCSS.Math.Content.3.NF.A.2b

3rd Grade Fractions and Number Lines
Enrichment Projects

Name: Due Date:

Write a story book called, **"My Life of Fractions"**. The story should have a cover page and ten pages. On each of the ten pages you should have a fraction, description about how the fraction describes your life and an illustration. **For example:** Every morning I eat 2/3's of my pop tart for breakfast.	Write a **"How To Locate Fractions On A Number Line"** brochure for other students teaching them all your secrets on how to locate fractions on a number line. Add illustrations, diagrams and whatever else you'd like to make your brochure look neat and informative.	Brainstorm and record a list of 50 ways that fractions can be used in real life. Illustrate five of the ways from your list.
Author a funny rhyming poem about the day fractions were outlawed by your city and no one was able to use fractions for anything ever again. Your poem should have five stanzas and include an illustration. 	Create a fraction picture book. Each page should illustrate each of the following illustrations: **1/3 corn on the cob** **½ student** **¼ school building** **1/5 pizza** **2/3 teacher** **1/6 chair** **1/8 house** **1/10 dog** Add a cover page with a ¾ fraction picture of you! 3/5	Create a large "theme" number line from 1-10. Choose a theme. On the number line, locate and label each of the fractions below. Write a sentence under each fraction that describes the fraction. Above each fraction draw an illustration. **Use these fractions on your number line:** $\frac{3}{4}$, $5\frac{1}{2}$, $3\frac{2}{3}$, $6\frac{1}{2}$, $7\frac{2}{10}$, $9\frac{1}{2}$ **For example** if your theme was football, you could draw yourself kicking a football above the fraction and write a sentence such as: "I kicked the football 5 ½ feet" under the fraction.
On ten 3"x5" cards make flashcards. On each card write a number line from 1-10 and a star on the number line representing a mixed numeral. On the back of the card write the mixed numeral answer that is being represented on the number line by the star. 	Write a humorous two page story about the "hopping happy" animal that hops from one fraction to the next on a number line to teach the other bunnies fractions. He tells stories all along the way. Include illustrations with your story. 	Draw five self-portraits of yourself representing the following fractions: **½ of yourself** **1/3 of yourself** **1/5 of yourself** **¼ of yourself** **2/3 of yourself** Each portrait should be on a 8x11" paper, detailed and in full color.

Complete three projects in tic tac toe order.

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3rd Grade Fractions and Number Lines Project Rubric:

Projects include all of the required components..... 40 Points_____

Projects are neat and organized.....30 Points_____

Projects make mathemctical sense.....20 Points_____

Projects completed on time.....10 Points_____

Total Possible..... .....100 Points

Student Name_____

Total Points _____

Grade_____

"Excellence is not being the best; it is doing your best."

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