WINTER BREAK LEARNING PACKET

MATH

6TH GRADE STUDENT

DEC 22ND – JAN 5TH

DEPARTMENT OF CURRICULUM & INSTRUCTION

Memphis-Shelby County Schools offers educational and employment opportunities without regard to race, color, religion, sex, creed, age, disability, national origin, or genetic information.

Hello MSCS Family,

This resource packet was designed to provide students with activities that can be completed at home independently or with the guidance and supervision of family members or other adults. The activities are aligned with the TN Academic Standards for Mathematics and will provide additional practice opportunities for students to develop and demonstrate their knowledge and understanding.

A suggested pacing guide is included; however, students can complete the activities in any order over the course of several days. Below is a table of contents which lists each activity.

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Answer Key	11	Week 1 & 2

Week 1: Find the Polygon	
Grade Level Standard(s)	**6.G.A.1** Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; know and apply these techniques in the context of solving real-world and mathematical problems.
Caregiver Support Option	The student may use a sibling or a guardian as a partner. For additional support, have the student access the video links below by logging into iReady from their Clever account. Video 1 Video 2
Materials Needed	Game Board, Counters (9 of one color per player)
Question(s) to Explore	Can I find familiar polygons within a figure?

Names:

Find the Polygon

What You Need

- Game Board
- counters, 9 of one color per player

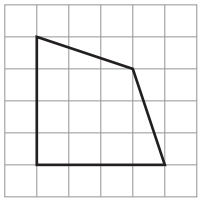
What You Do

1. Take turns. Choose a letter.
2. Read the expression next to that letter in the table. Evaluate the expression.
3. Find a polygon on the **Game Board** that has an area that can be found using the expression.
4. Another player checks your work.
5. If you are correct, cover that polygon with a counter. If you are incorrect, play passes to the next player.
6. Continue until all polygons are covered. The player with the greatest number of counters on the **Game Board** wins.

A	$(6 \cdot 6) - (2 \cdot 3)$
B	$(4 \cdot 3) + (3 \cdot 2) + \left(\frac{1}{2} \cdot 3 \cdot 2\right)$
C	$2 \cdot \frac{1}{2} \cdot 6 \cdot 3$
D	$(1 \cdot 6) + \left(\frac{1}{2} \cdot 3 \cdot 3\right) + \left(\frac{1}{2} \cdot 4 \cdot 3\right)$
E	$(4 \cdot 3) + \left(\frac{1}{2} \cdot 1 \cdot 3\right)$
F	$(6 \cdot 6) - \left(\frac{1}{2} \cdot 6 \cdot 3\right)$
G	$\frac{1}{2} \cdot 6 \cdot 5$
H	$\left(\frac{1}{2} \cdot 1 \cdot 5\right) + (3 \cdot 5) + \left(\frac{1}{2} \cdot 2 \cdot 5\right)$
I	$\left(\frac{1}{2} \cdot 4 \cdot 2\right) + \left(\frac{1}{2} \cdot 4 \cdot 4\right)$

Check Understanding

Write and evaluate an expression for the area of the polygon.



Go Further

Choose a polygon on the **Game Board**. Write and evaluate a different expression for the area of the polygon than the expression used in the game. Check that the area matches the one found during the game.

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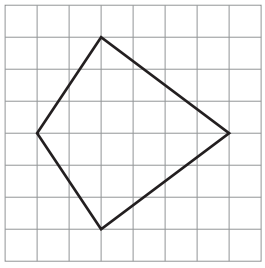
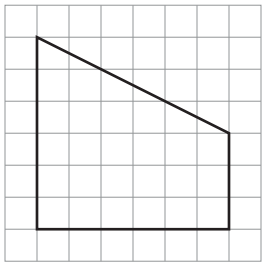
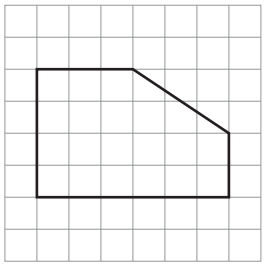
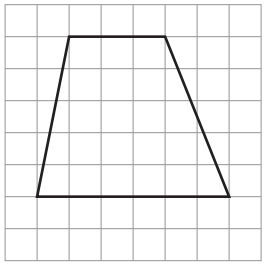
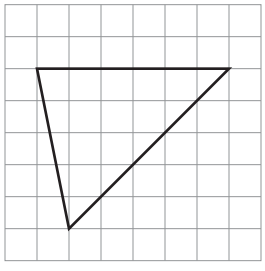
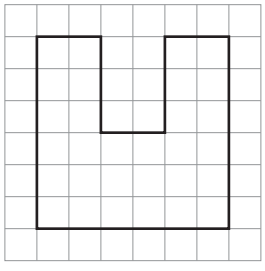
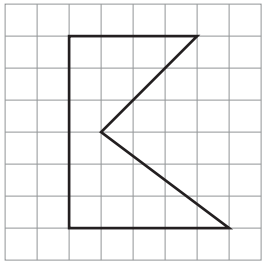
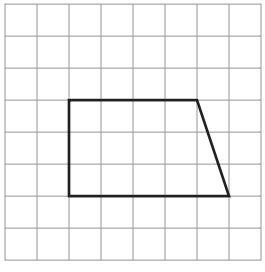
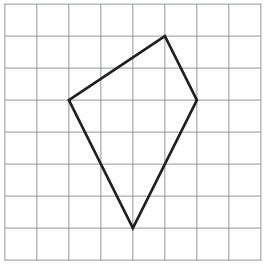
Names:

Find the Polygon

GAME BOARD

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Week 2: Match Nets with Shapes and Surface Area	
Grade Level Standard(s)	**6.G.A.4** Represent three-dimensional figures using nets made up of rectangles and triangles and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.
Caregiver Support Option	The student may use a sibling or a guardian as a partner. For additional support, have the student access the video link below by logging into iReady from their Clever account. Video 1 Video 2
Materials Needed	3-D Shape Cards, Net Cards, Equation Cards
Question(s) to Explore	How do I construct the net of a three-dimensional figure?

Name:

Match Nets with Shapes and Surface Area

What You Need

- 3-D Shape Cards
- Net Cards
- Equation Cards

What You Do

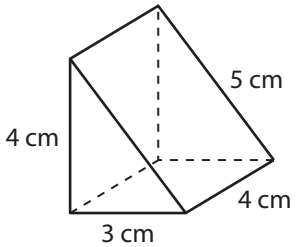
1. Place all the **3-D Shape Cards** faceup on the table. Shuffle the **Net Cards** and place them in a pile facedown.
2. Take turns. On your turn, draw a **Net Card** and find the matching **3-D Shape Card**. Explain why they match. The other players check the match.
3. Repeat until all of the **Net Cards** have been matched.
4. Shuffle the **Equation Cards** and place them in a pile facedown.
5. Continue taking turns. On your turn, draw an **Equation Card** and place it with one pair of the other cards. Explain why the cards match. The other players check the match.
6. Repeat until all of the **Equation Cards** have been matched.

KEEP IN MIND . . .

- If you are unsure about any matches, set them aside to come back to at the end. Completing the other matches may help you determine the correct pairing.
- On each **Equation Card**, S.A. = Surface Area.

Check Understanding

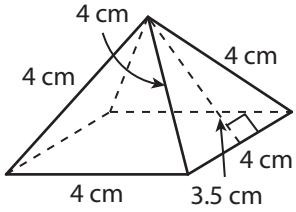
Sketch a net for this shape. Then find its surface area.



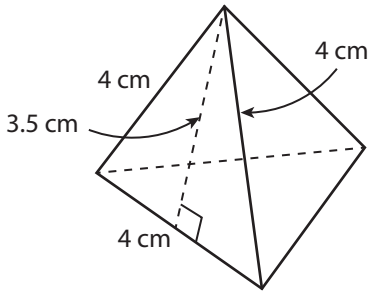
Go Further

Working together with your group, find the surface area of each shape in this activity.

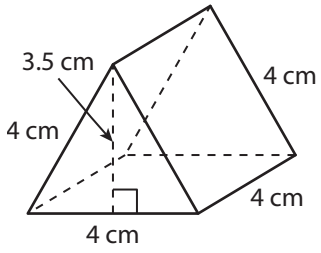
S1



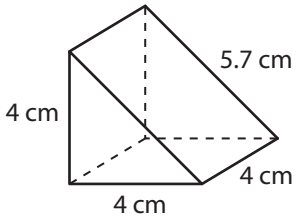
S2



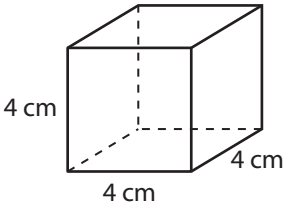
S3



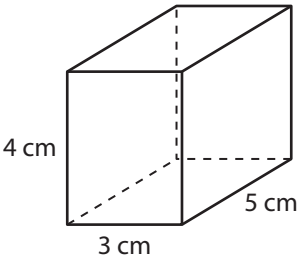
S4



S5



S6



Note: Decimals are rounded to the nearest tenth.

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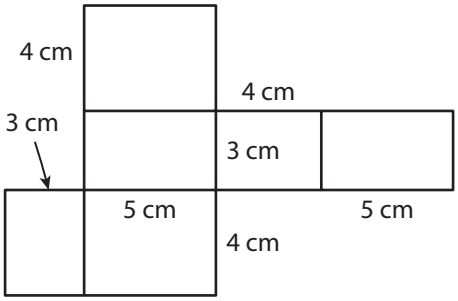
N1



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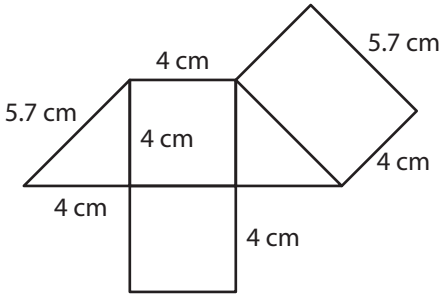

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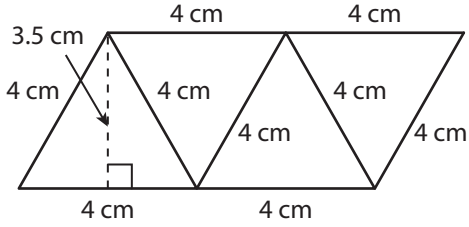
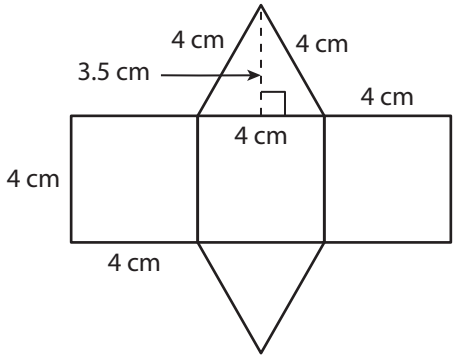
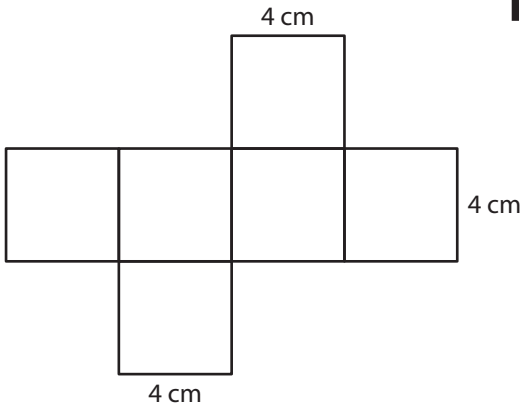


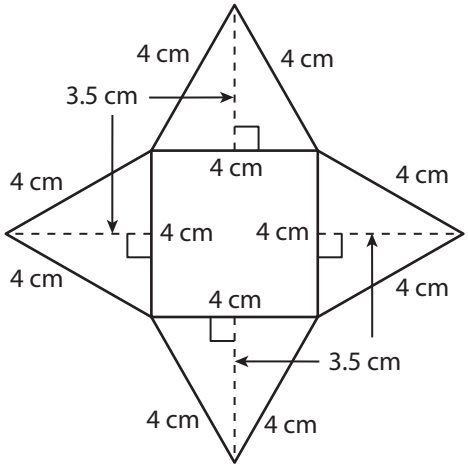
N4



N5



N6



Note: Decimals are rounded to the nearest tenth.

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E1

$$S.A. = 4\left(\frac{1}{2} \cdot 4 \cdot 3.5\right)$$

E2

$$S.A. = 2(4 \cdot 5) + 2(3 \cdot 4) + 2(3 \cdot 5)$$

E3

$$S.A. = 2\left(\frac{1}{2} \cdot 4 \cdot 3.5\right) + 3(4 \cdot 4)$$

E4

$$S.A. = 3(4 \cdot 4) + (5.7 \cdot 4)$$

E5

$$S.A. = 6(4 \cdot 4)$$

E6

$$S.A. = 4\left(\frac{1}{2} \cdot 4 \cdot 3.5\right) + (4 \cdot 4)$$

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Answer Key

Find the Polygon

Check Understanding

Possible answer: $(3 \cdot 3) + \left(\frac{1}{2} \cdot 3 \cdot 1\right) + \left(\frac{1}{2} \cdot 1 \cdot 3\right) = 12$;

The area of the polygon is 12 square units.

ACTIVITY ANSWERS

Each area is in square units.

Row 1:

C: $2 \cdot \frac{1}{2} \cdot 6 \cdot 3 = 18$

F: $(6 \cdot 6) - \left(\frac{1}{2} \cdot 6 \cdot 3\right) = 27$

B: $(4 \cdot 3) + (3 \cdot 2) + \left(\frac{1}{2} \cdot 3 \cdot 2\right) = 21$

Row 2:

H: $\left(\frac{1}{2} \cdot 1 \cdot 5\right) + (3 \cdot 5) + \left(\frac{1}{2} \cdot 2 \cdot 5\right) = 22.5$

G: $\frac{1}{2} \cdot 6 \cdot 5 = 15$

A: $(6 \cdot 6) - (2 \cdot 3) = 30$

Row 3:

D: $(1 \cdot 6) + \left(\frac{1}{2} \cdot 3 \cdot 3\right) + \left(\frac{1}{2} \cdot 4 \cdot 3\right) = 16.5$

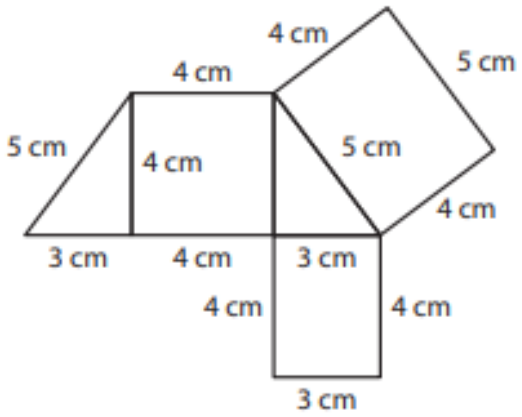
E: $(4 \cdot 3) + \left(\frac{1}{2} \cdot 1 \cdot 3\right) = 13.5$

I: $\left(\frac{1}{2} \cdot 4 \cdot 2\right) + \left(\frac{1}{2} \cdot 4 \cdot 4\right) = 12$

Match Nets with Shapes and Surface Area

Check Understanding

Possible net:



S.A. = 60 cm^2

ACTIVITY ANSWERS

Each card has a code in the top right corner that is used below to describe the correct matching sets.

S1, N6, E6

S2, N3, E1

S3, N4, E3

S4, N2, E4

S5, N5, E5

S6, N1, E2