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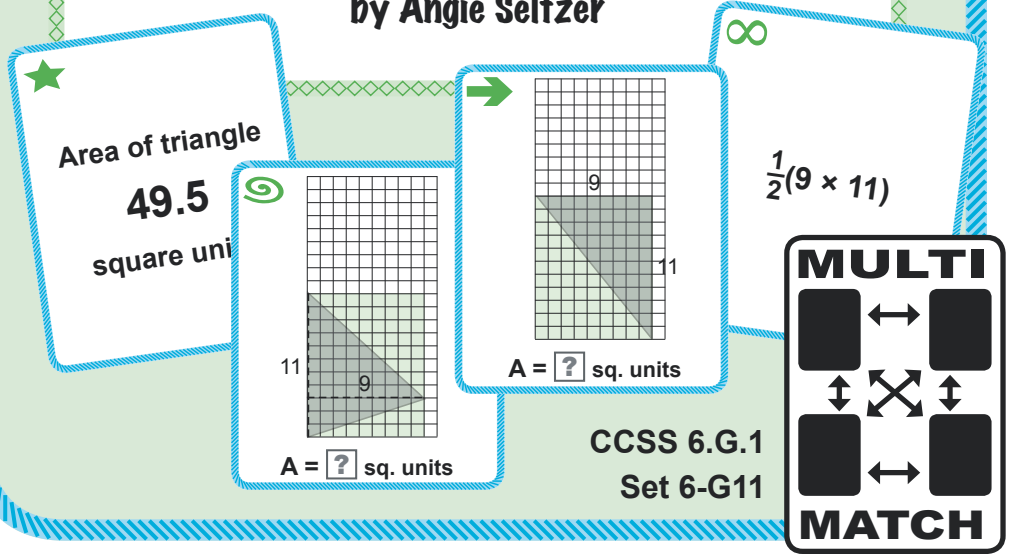
Grade 6

Understanding Area of a Triangle

by Angie Seltzer



CCSS 6.G.1
Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes ...

Goal 6-G11
Find areas of triangles.

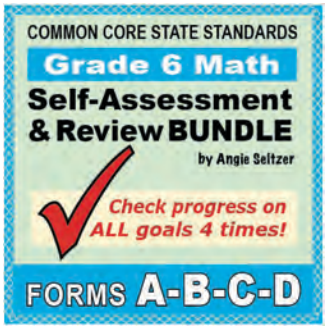
Includes

- Set of 36 math cards, as 4 suits with 9 cards per suit
- Card-matching activity
- Recording sheet with answer key
- Brief instructions for four games (For more instructions, see the *Multi-Match Games Guide*.)

Related Resources

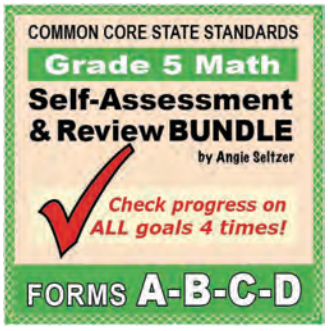
Click any tile to view the resource at the TeachersPayTeachers store.

Grade 6 Resource Bundles

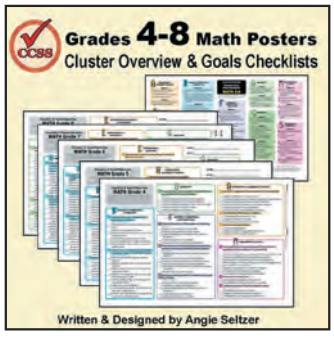


FREE Goals Leaflet

Grade 5 Review



Goal Checklists

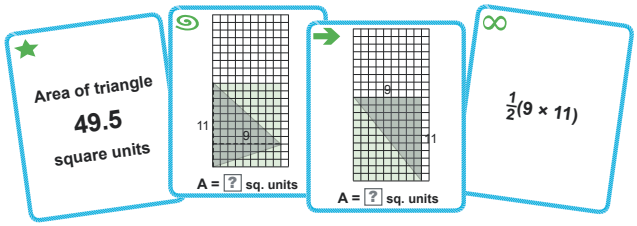


FREE CCSS Poster

Contents

About This Card Set

This card set is one of many *Multi-Match* sets developed by Angie Seltzer for grades K-8. Sets consist of 9 groups of 4 cards that have matching values and/or models. Any two of the four cards in a group can be considered "a match." Thus, there are multiple ways to match cards.



Mathematics Content

This card set will help students see that the area of a triangle is half the area the rectangle with the same base and height. "Easy" numbers are used for the dimensions so that most students will be able to do calculations with mental math.

- Each "star" card shows an area measurement.
- The "sprial" and "arrow" cards shows a 20 by 10 grid, a lightly-shaded rectangle, and a triangle with the same base and height as the rectangle.
- The "infinity" cards show the calculations for the area of each triangle in square units.

Meaning of Set Code 6-G11

The code stands for Grade 6, Geometry, Cluster 1, Goal 1 in the Grade 6 Common Core goals checklist at www.mathpaths.com.

General Preparation

Copy the card pages onto heavy paper, making one copy for each group of students or for a math center. (Plain paper can also be used but cards will be less durable.) Cut apart the cards. Print page 10 using copy paper and fold the page to make a storage pocket. Tack the storage pocket to a bulletin board. Or, store the cards in a small bag or envelope with the title card taped to the front.

Matching Activity

Setup Shuffle the card set. The Wild cards are not needed. Make copies of the recording sheet for each student.

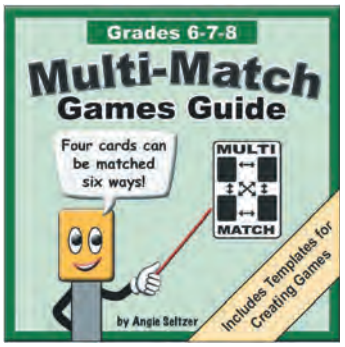
Instructions Have students separate the star cards from the other cards. Tell students to organize them in a row, in order, face up. Then have students sort the rest of the cards and match them with star cards. Remind students that each star card will have a matching card from each suit. After they finish sorting, have them complete the recording sheet.

Variations To make the activity easier, use only four to six groups of four matching cards. Or, you many want to use only two of the four suits.

Extension After students finish the recording sheet, you may suggest that they draw several triangles, measure the base and height, and then calculate the area.

Using Multi-Match Games

These cards are designed to be used with any of the easy games in the free *Multi-Match Games Guide.* For brief game instructions, see page 7.
As students use the cards during games, they will improve their mental math and modeling skills. These skills are critical in meeting the *Standards for Mathematical Practice*. This card set will also help students make generalizations such as the ones in the box below.



Making Generalizations

As students use the cards, encourage them to look for and discuss patterns and generalizations.

- If the base and height of a triangle are doubled, the area is multiplied by 4.
- You can make a right triangle by cutting a rectangle in half diagonally. That's why the triangle has half the area of the related rectangle.
- To mentally calculate area of a triangle from the base and height, you can divide either dimension by 2 and then multiply by the other dimension.

Multi-Match Cards 6G: Understnding Area of a Triangle (Published 07/07/2014, Updated 09/23/2015)
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Area of triangle

18

square units

Area of triangle

20

square units

Area of triangle

31.5

square units

Area of triangle

42

square units

Area of triangle

49.5

square units

Area of triangle

56

square units

Area of triangle

63

square units

Area of triangle

72

square units

Area of triangle

80

square units

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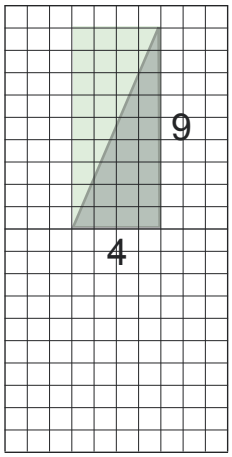
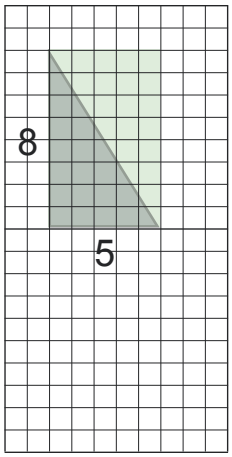


A = ? sq. units



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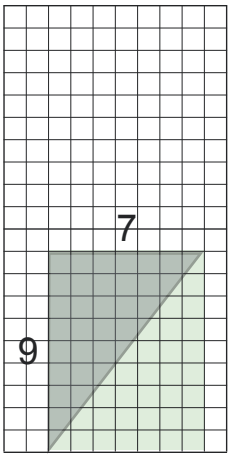

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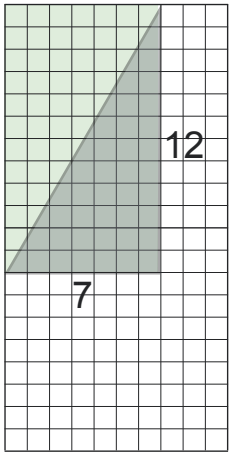

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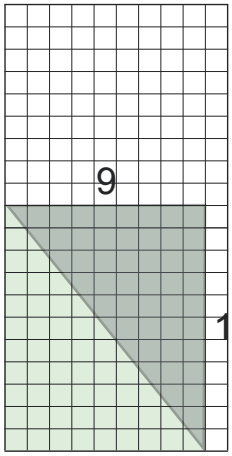

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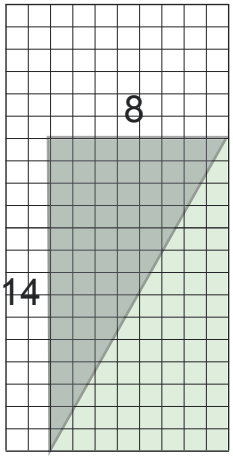

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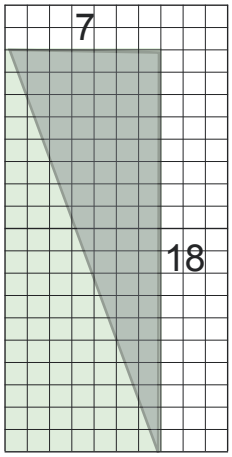

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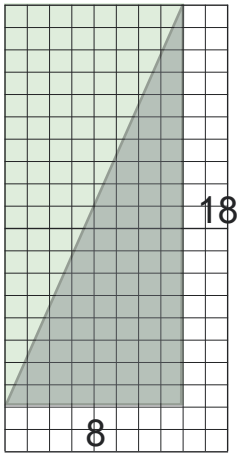

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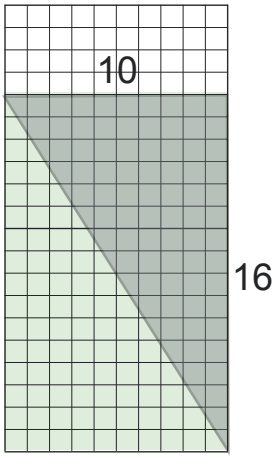

A = ? sq. units

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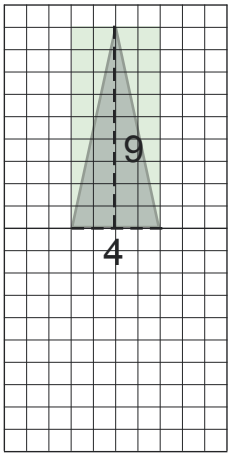

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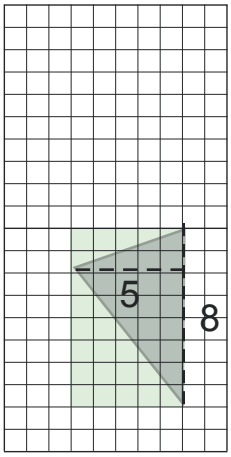

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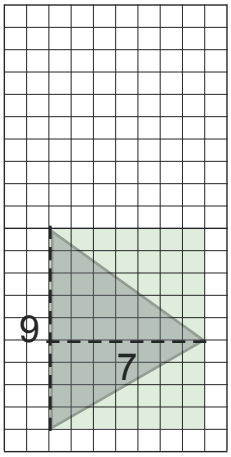

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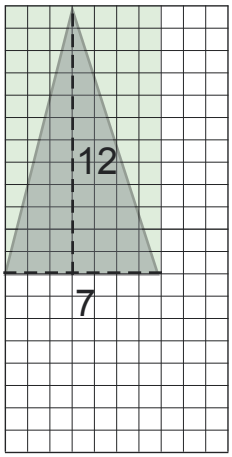

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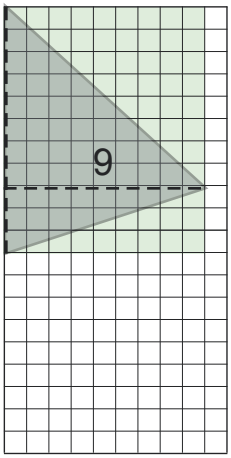

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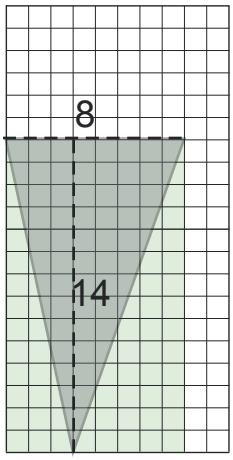

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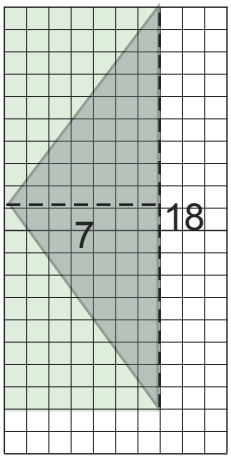

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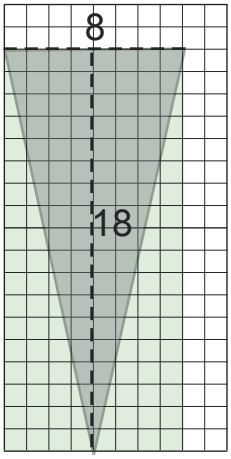

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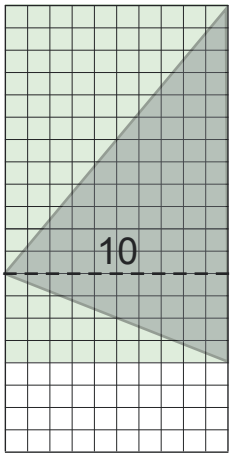

A = ? sq. units

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$\frac{1}{2}(4 \times 9)$	$\frac{1}{2}(5 \times 8)$	$\frac{1}{2}(7 \times 9)$
$\frac{1}{2}(7 \times 12)$	$\frac{1}{2}(9 \times 11)$	$\frac{1}{2}(8 \times 14)$
$\frac{1}{2}(7 \times 18)$	$\frac{1}{2}(8 \times 18)$	$\frac{1}{2}(10 \times 16)$

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CCSS 6.G.1
Set 6-G11

Understanding Area of a Triangle

MULTI MATCH

By Angie Seltzer
www.mathpaths.com

Pairs Challenge

Players: 2-6

Time: 2-10 minutes

Object: Earn the most points from matches.

Setup: Deal six cards to each player. (Wild cards are not needed.)

Instructions: Players look at their cards to see if there are any matching cards. Each matching pair is worth 1 point. A set of three matching cards is worth 3 points. The player with the most points wins. (Some games will end as a tie.) Repeat the game several times.

By Angie Seltzer, www.mathpaths.com

Clear the Deck

Players: 1

Time: 10- 20 minutes

Object: Pick up all of the cards.

Setup: Deal nine piles of cards, face up, four per pile. (Omit Wild cards.)

Instructions: The player looks at the nine piles, picks up two cards that match, and stacks them to the side. The player continues to look for and pick up pairs. When there are no visible matching pairs, the game is over. If the player clears all cards without getting stuck, the player wins! As a variation, player can spread cards into empty spaces and continue until all cards have been cleared.

By Angie Seltzer, www.mathpaths.com

Wild

Concentration

Players: 2-4 **Time:** 15-30 minutes

Object: Match the most pairs of cards.

Setup: Place the set of cards (except Wilds) face down in a 6-by-6 array.

Instructions: Each player, in turn, turns up two cards, states the value of each card, and decides if the cards match. If the cards match, the player picks up and saves the two cards and the turn ends. If they do not match, the player turns the cards back over. The next player then takes a turn. Play goes on until all cards are picked up. The player with the most pairs wins.

By Angie Seltzer, www.mathpaths.com

Crazy Match

This game is similar to *Crazy 8s* or *UNO*.

Players: 2-4 (Use a double set if there are 3-4 players.) **Time:** 15-30 minutes

Object: Be the first to run out of cards.

Setup: Deal 7 cards per player. Turn up a card for the Discard pile. Place the rest in a Draw pile.

Instructions: Players take turns matching a card from their hand to the top card on the Discard pile. They can match the number, suit, or play a Wild card. If a player has no card to play, he or she must draw two cards from the Draw pile and the turn ends. When a player plays a Wild card, the player must name a suit for the next player to match. Play goes on until a player runs out of cards. That player wins.

By Angie Seltzer, www.mathpaths.com

Wild

Wild

Wild

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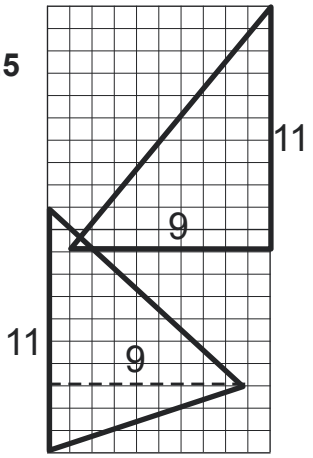
Name_____Date_____ **Set 6-G11**

Instructions: On each grid, draw two triangles with the given area. Label the dimensions in units.

Sample:

Area = 49.5 square units



1 **Area = 18 square units**

2 **Area = 63 square units**

3 **Area = 56 square units**

4 **Area = 20 square units**

5 **Area = 42 square units**

6 **Area = 80 square units**

7 **Area = 72 square units**

8 **Area = 31.5 square units**

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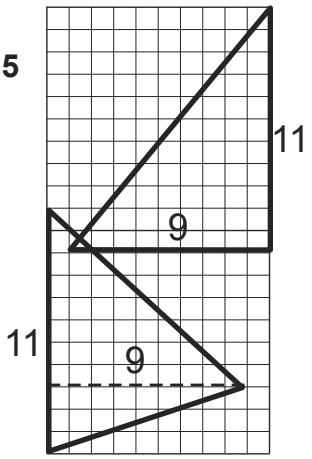
ANSWER KEY Triangles may vary.

Set 6-G11

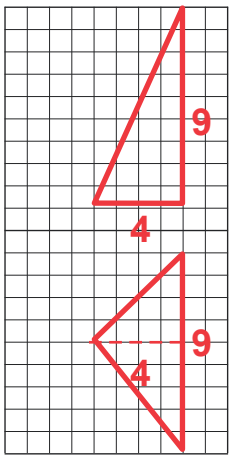
Instructions: On each grid, draw two triangles with the given area. Label the dimensions in units.

Sample:

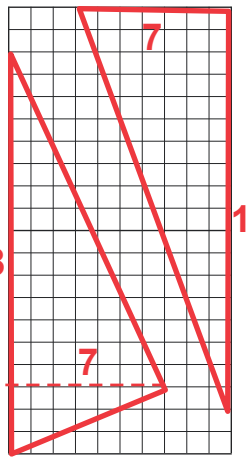
Area = 49.5 square units



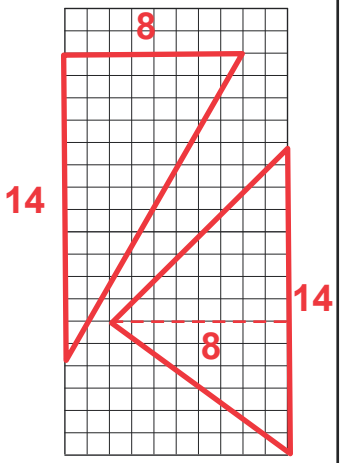
1 **Area = 18 square units**



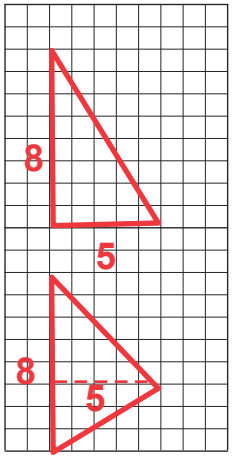
2 **Area = 63 square units**



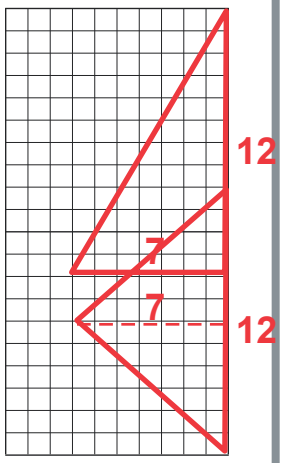
3 **Area = 56 square units**



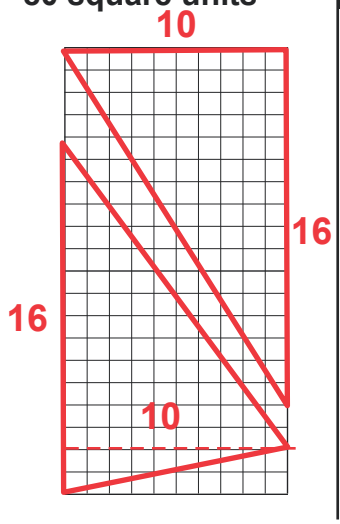
4 **Area = 20 square units**



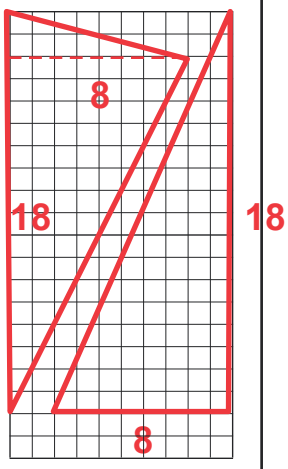
5 **Area = 42 square units**



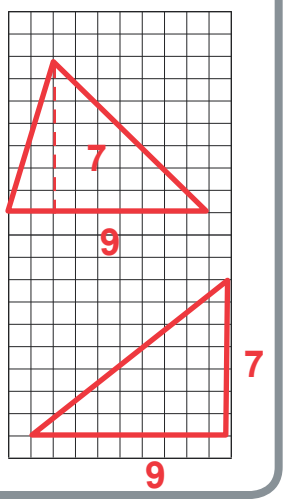
6 **Area = 80 square units**



7 **Area = 72 square units**



8 **Area = 31.5 square units**



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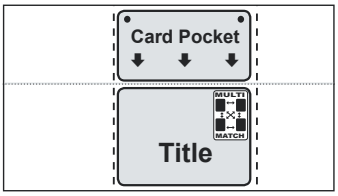
Folding Card Storage Pocket

Instructions

1. Using entire page, make mountain folds along all three horizontal dotted lines. Turn folded page to look like this.



2. Fold back the side flaps along the dashed lines. On the back side, tuck one folded flap inside the other.
3. To display on bulletin board, place tacks at black dots. Place card set into pocket.

CCSS 6.G.1
Set 6-G11

MULTI MATCH

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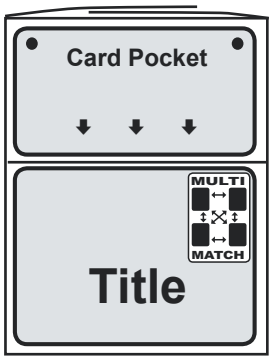
Finished Pocket



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Back Side of Pocket

Card Pocket