

# Session 5



## PROBLEMS & INVESTIGATIONS

### Caterpillar Fill & Add

#### Overview

Using transparent pattern blocks on the overhead, the teacher introduces a new game called Caterpillar Fill & Add. In this game, teams take turns rolling 2 dice and totaling the numbers to determine how many triangles they can fill in on their caterpillar game-boards. (Each triangle is worth 1. A roll of 3 and 5 means the team will be able to fill 8 triangles on its caterpillar.) Totals may be taken using triangles or figures equivalent to triangles, such as rhombuses, trapezoids, or hexagons. The first team to fill its caterpillar exactly wins. This game will reappear in the next set of Work Places.

#### You'll need

- ★ Caterpillar Fill & Add (Overhead 10)
- ★ overhead pattern blocks—triangles, trapezoids, blue rhombuses, and hexagons
- ★ overhead pens in yellow, green, blue, red, and black
- ★ 2 dice—one numbered 0–5, the other numbered 1–6

#### Skills

- ★ exploring the idea of area
- ★ exploring fractions ( $\frac{1}{2}$ ,  $\frac{1}{6}$ ,  $\frac{1}{3}$ )
- ★ exploring equivalent fractions ( $\frac{3}{6} = \frac{1}{2}$ )
- ★ exploring addition of fractions ( $\frac{1}{6} + \frac{1}{3} = \frac{1}{2}$ )
- ★ adding numbers to 24

**Caterpillar Fill & Add**

**Team A**

**Team B**

Overhead 10

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Record scores here.  
First to fill the caterpillar wins!

**Team A**

**Team B**

**Session 5** Caterpillar Fill & Add (cont.)

Gather children close to the overhead and explain that you are going to teach them how to play a new game with pattern blocks. Show the gameboard and ask children to share observations with the people near them, and then with the group.

**Children** *Wow! Those look like caterpillars.  
There are big ones and little ones—2 of each.  
They're made out of pattern blocks—green triangles again.  
It says, "triangle equals 1." I wonder what that means.  
There are 6 triangles in each hexagon.  
There are 24 in each caterpillar. I know because 6 plus 6 is 12, and 12 plus 12 is 24.  
There are 2 teams—Team A and Team B. I want to be on Team A.  
It says that the first to fill a caterpillar wins.*

After students have had a chance to examine the gameboard, divide them into two teams, or have them all be part of the same team to play against you. Instead of trying to explain the game beforehand, just tell your students that the first team to fill its caterpillar exactly will win. Then get started. Take the first roll yourself to demonstrate. Roll the two dice and add the numbers. The total tells how many overhead triangles you can take. Take that many (or their equivalent in other shapes) and use them to start filling in your caterpillar. Record your move in the Team A box at the bottom of the transparency using overhead pens to color in the appropriate shapes. Then record your total.

**Teacher** *I'm going to take the first move for Team A so you can all see how to play this game. John, would you like to roll the dice for your team?*

**John** *Sure! I got a 4 and a 5.*

**Teacher** *Class? What's 4 + 5?*

**Children** *9!*

**Teacher** *Now comes the fun part. I get to take 9 green triangles for Team A and use them to start covering their caterpillar, or I can take other shapes that are the equivalent of 9 triangles.*

**Children** *What's equivalent?  
What do you mean?*

**Teacher** *How many green triangles does it take to cover a blue rhombus?*

**Children** *2. It takes 2 triangles for a rhombus.  
I get it. The rhombus is worth 2. The trapezoid, let's see—it's 3. It takes 3 triangles to make a trapezoid.  
And the hexagon is worth 6.*

**Session 5** Caterpillar Fill & Add (cont.)

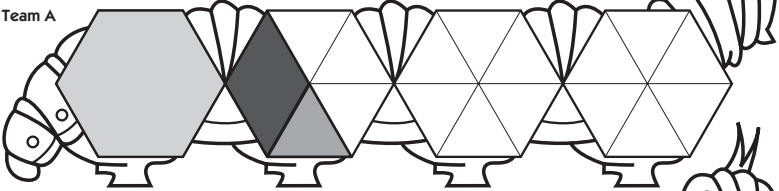
**Teacher** So, Team A folks, how do you want to take your 9? Do you want it all in triangles?

**Children** Let's take it in hexagons. It'll be faster that way.  
Hey, wait! We can only take 1 hexagon. Then we'll have 3 left over.  
Let's take that 3 in a rhombus and a triangle.

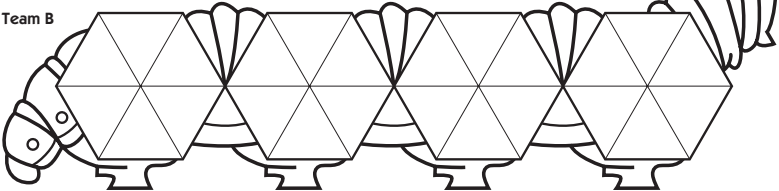
**Teacher** All right. I'll take the advice I've heard so far. First I'll get a hexagon and cover the first section of your caterpillar. Then I'll take a rhombus and a triangle and keep going. Next, I'm going to record your score so far in the Team A box at the bottom of the sheet. Let's see. I'll need to color 6 triangles yellow, 2 blue, and 1 green.

**Caterpillar Fill & Add**

**Team A**



**Team B**

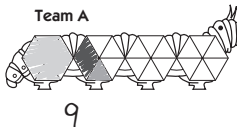


Overhead 10

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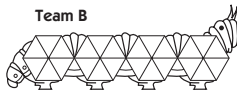
Record scores here.  
First to fill the caterpillar wins!


**Team A**



9

**Team B**





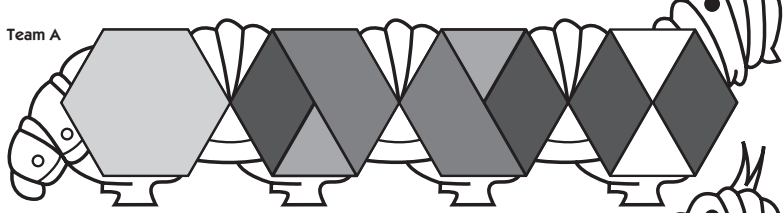
After demonstrating the first move, have the two teams play back and forth (or have children take turns doing the rolling, building, and recording for you and for their own team). As soon as a team has 6 or fewer triangles to go, the players on that team can opt to roll one die instead of two. If they roll a number or a total that's more than they can use, they lose their turn and must try again the next time. A completed game is shown below.

**Session 5** Caterpillar Fill & Add (cont.)

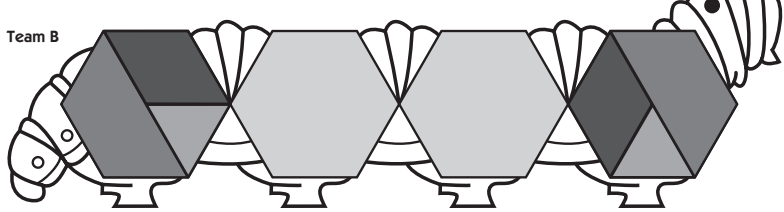
Overhead 10

### Caterpillar Fill & Add

**Team A**




**Team B**



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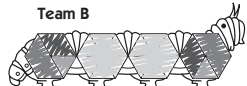
Record scores here.  
First to fill the caterpillar wins!

**Team A**




$9 + 7 + 6 = 22$

**Team B**

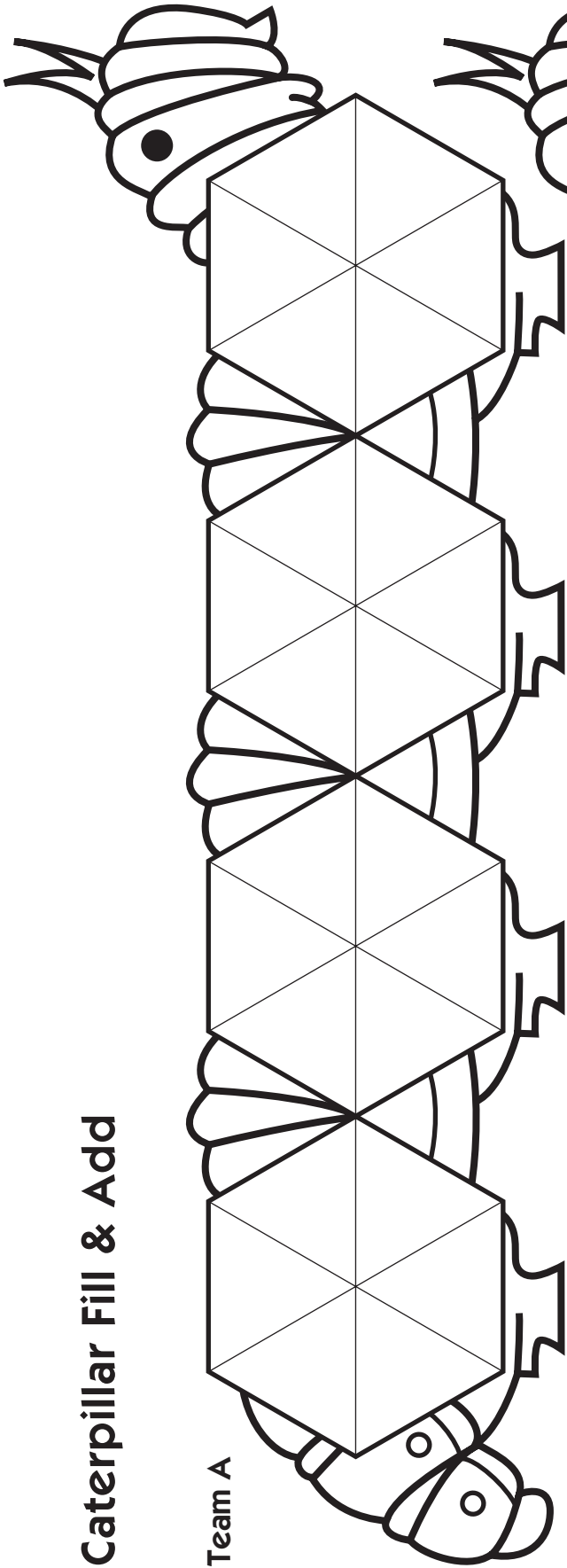


$5 + 6 + 8 + 5 = 24$

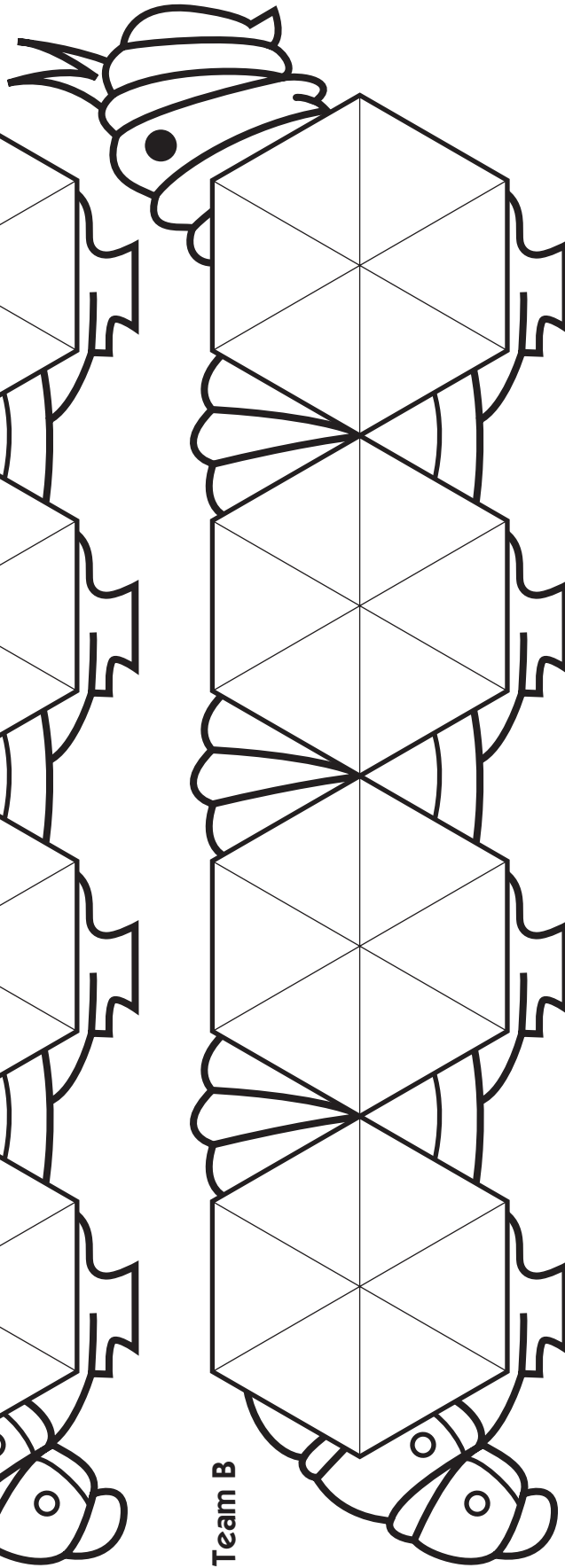


# Caterpillar Fill & Add

Team A

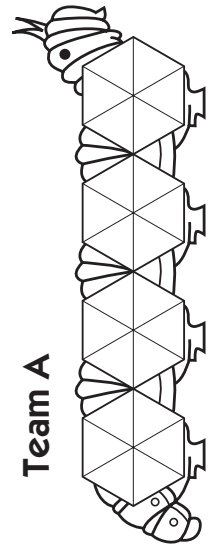


Team B



Record scores here.  
First to fill the  
caterpillar wins!

Team A



Team B

