

DICE GAME

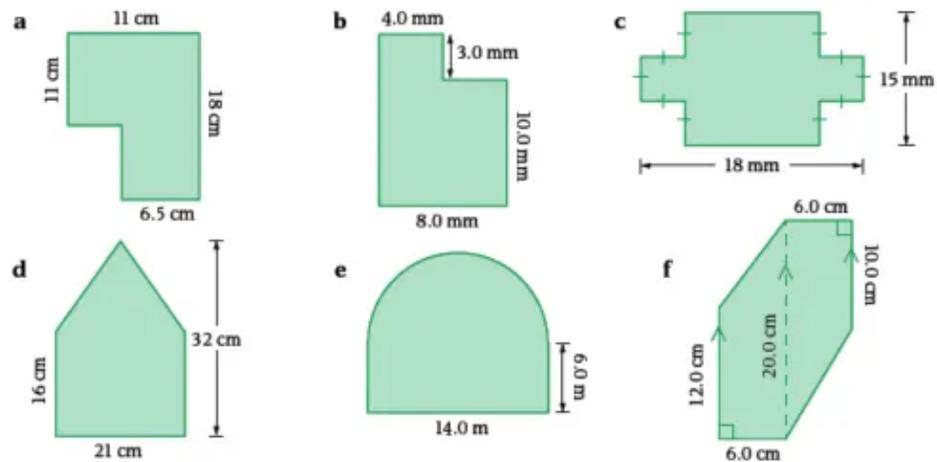
Level	3 (Age group 11 – 14)
Resources Required	2 dice, graph paper, colors, rulers
Alternate Options for the Resources	To make the dice follow the steps below: <ol style="list-style-type: none"> 1. Draw and cut out the net of a cube by following the template in the images section below. Draw 4 squares horizontally and draw one square above and below the second horizontal square. 2. On each square face draw dots representing a unique number from 1-6 (no number should be repeated). Fold the net so that all the numbers are facing outwards 3. Use glue or any adhesive to stick the edges of the cube together 4. Repeat so a total of 2 dice are made.
Strand Covered	Shape and Measurements
Targeted Skills	Area of composite shapes
Inspired by	Multiplication.com - Jen Wieber
Time Required	Game time 20 minutes Set up time 10 minutes (to make the dice)
Previous Learning Required	Know how to draw a rectangle Know addition Know multiplication tables up to table 6
Support Required	Low supervision

Rules of the Game:

Goal	Have the highest total area on the graph paper
Rules	Players must throw both dice at the same time.
Steps	Note: This game is designed for 2 players. Step 1: Assign both players a different colored pencil with which they will draw on the graph paper. Ask each player to roll one die; whoever gets the highest number gets the first turn. Step 2: Ask the first player to roll both dice. The two numbers that the dice land on will become either the length or width of the rectangle he/she will then draw on the graph paper. For example, if the dice land on 4 and 6, the rectangle will measure 4 by 6. It is up to the players if they want 4 as the width and 6 as the length or 4 as the length and 6 as the width.

Step 3: Both players will continue to repeat step 2 until the graph paper is almost filled.
 Note: At the end, there will be spaces left on the graph paper that will need to have exact numbers rolled on the dice to fit a rectangle into. If that is the case, players have to skip their turn if they don't roll that particular number (i.e. if a player rolls the dice and gets numbers that are too big to be the dimensions of a rectangle that is small enough to fit in the remaining space on the graph paper, they skip their turn and the other player plays. If both players skip 3 turns consecutively, they can move to the next step.

Extra step to make it level 3: players cut out the rectangles, combine them and add other shapes such as triangles and semicircles. They should use the different shapes to create a composite shape such as the following:

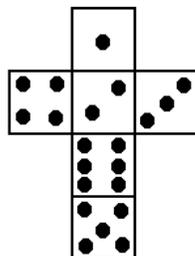


Step 4: Ask both players to first, calculate the area of their composite shape. (To calculate the area, multiply the length times the width or just count the number of boxes inside the rectangle). Then, add all the areas together.

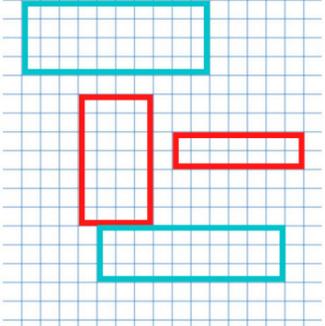
Step 5: The player with the highest total area on the graph paper wins the game.

Images or Illustrations

Dice Template:



Setup:

	
Variations of the Game	<p>Play the game with one die numbered from 1-6 and one dice numbered from 7-12.</p> <p>Numbers on the dice can be used as dimensions of different shapes including trapeziums and parallelograms</p>
Enrichment	<ol style="list-style-type: none"> 1) Play this game with right triangles 2) Play this game with trapezoids 3) Play this game with other regular shapes.
Simplification	<p>Give each player a separate graph paper and specify a fixed amount of moves</p>