Math Kangaroo Class Level 3-4

Lesson 7:

Experimenting and Acting Out

Warm up

Instruction

Experimenting and Acting Out

Wrap up

Bonus Slides

Warm Up

MK 2002 # 8

Which of the figures below couldn't be made by folding a rectangular sheet just once?

(A)

(B)

(C)

(D)

(E)

Roadmap: toolkit of problem solving strategies

1. Drawing a picture or diagram
2. Making an organized list
3. Making a table
4. Finding a pattern and solving a simpler related problem
5. Guessing and checking
6. Experimenting and acting out
7. Working backwards
8. Logical Reasoning

Experimenting

Problems involving geometric configurations or spatial relationships are sometimes solved by experimenting with a physical model in which concrete objects may be manipulated.

Acting out the problem

1. When it is difficult to visualize a problem or the procedure necessary for its solution, it may be helpful to physically act out the problem situation. Students might use items that represent the people or the objects

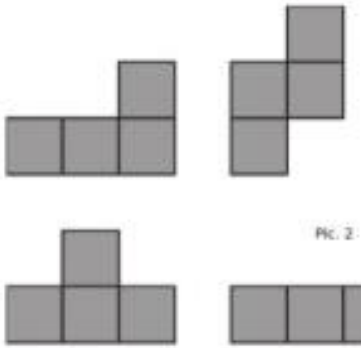
2. Acting out the problem may itself lead them to the answer, or it may lead them to find another strategy that will help them find the answer.

Level 3-4

Lesson 7:
Experimenting and Acting Out

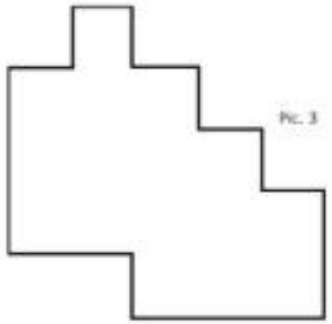
MK 2014 # 8

1. Ann has four gray pieces shown in Pic. 2. She needs to completely cover the white shape shown in Pic. 3. Where does she need to place the T-shaped piece shown in Pic. 1 so that she can use the other three pieces to cover the rest of the shape?

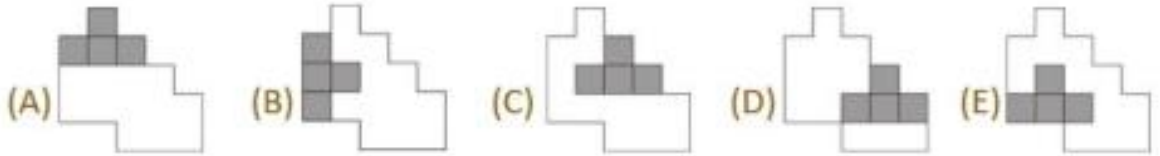


Pic. 1

Pic. 2

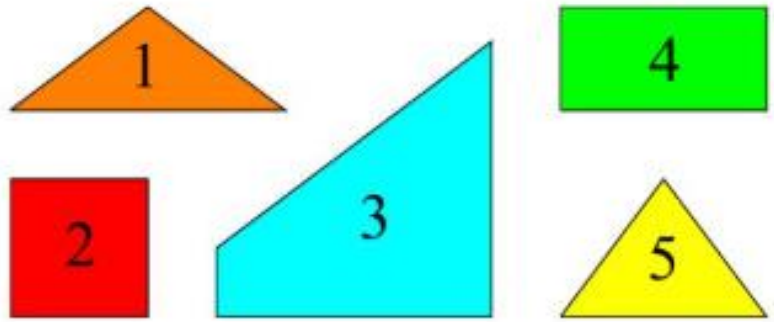


Pic. 3



MK 2016 # 14

2. Which three of the five jigsaw pieces shown below can be joined together to form a square?

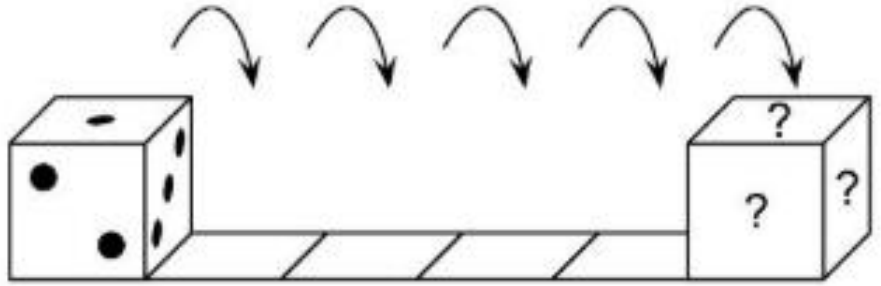


MK 2021 # 16

3. Nora is playing with 3 cups on the kitchen table. In each move, she takes the cup on the left, flips it over, and puts it to the right of the other cups. The picture shows the first move. What do the cups look like after 10 moves?

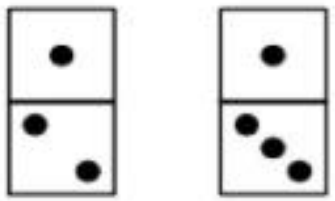
MK 2020 # 17

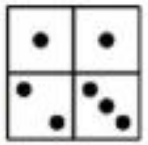
4. A standard die has 7 as the sum of the dots on opposite faces. The die is put on the first square as shown and then rolls towards the right. When the die gets to the last square, what is the total number of dots on the three faces marked with the question marks?

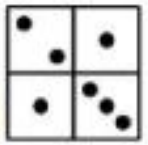


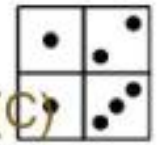
MK 2009 # 17

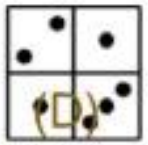
5. Which of the figures below cannot be made using the two dominoes shown in the picture to the right?

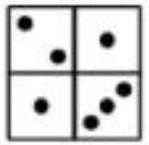


(A) 

(B) 

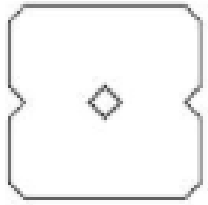
(C) 

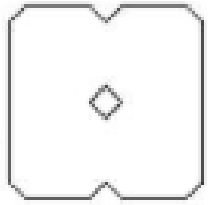
(D) 

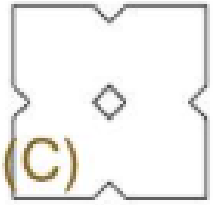
(E) 

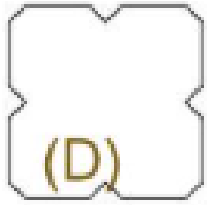
MK 2010 # 17

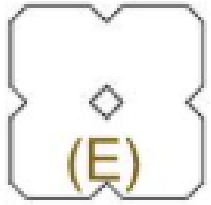
6. Ella folded a square piece of paper twice, and so made a square with each of its sides as long as half of the original piece of paper. She then cut off all four corners from the square she made. Which of the pictures below shows the piece of paper after unfolding?

(A) 

(B) 

(C) 

(D) 

(E) 

MK 2015 # 23

7. We have three transparent sheets with the patterns shown. We can rotate the sheets, but not turn them over. Then we put all three sheets exactly one on top of the other. What is the maximum possible number of black squares seen in the square obtained in this way if we look at it from above?