## One

# Rich Learning Tasks 

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Problem Solving and Reasoning

## Away from Home

Locations A, B and C are all on the same road as Home.
Choose a value for [ ] greater than 3.
$A$ is $\frac{3}{[]}$ of the way to $B$ from home. $C$ is $\frac{2}{3}$ of the way to $A$ from home.
Show where $A, B$ and $C$ should be. You can estimate.
What part of the way to $B$ is $C$ ?
Why does that make sense?
Try using different values for [ ].


## Add and Subtract

You add two numbers.
You subtract the same two numbers.
The answers are 3.28 apart.
What could your numbers have been?

## How Much is $10000 ?$

Draw a picture that gives a feel for how much 10000 is.
Explain why your picture makes that amount clear.

## Multiplying Two by Two

You model how to multiply two 2-digit numbers by using 32 base ten blocks.
What numbers might you be multiplying?
Show why you're right.
What is the product?
Get lots of possibilities.

## Moving Around

Start at the bottom left corner of the grid.
Describe a path of single-square moves, right, left, up or down, you would have to make to collect all four objects. How many moves long is your path?
Now place two more objects on the grid so that it takes a total of 15 singlesquare moves to collect all 6 objects, still starting at the bottom left corner.
Describe the 15-move path, starting at the bottom left corner.
Use either Grid 1 or Grid 2.

## GRID 1



## GRID 2



## Two Points

The two dark dots shown could be part of one or two edges or could be vertices of the shape you see after you reflect a triangle using a mirror or Mira.
Draw the original triangle, the reflection line and the reflection that the dots are part of.
Try different possibilities.

## Three Prisms

A short, medium and tall rectangular prism, together, have a total volume of 80 cubic units.
What might be the length, width and height of each?
Think of a number of possibilities.

## Big and Little Rectangles

The area of one rectangle is $2 \frac{1}{2}$ times as big as the area of another. What could the original and new lengths and widths be?
Show at least three possibilities starting with the same small rectangle. Can you do the same thing if you start with a different small rectangle?

## Related Patterns

Two patterns are given.
$3,6,9,12, \ldots$
$11,21,31, \ldots$

Terms in the patterns are called 'matching' if they are both in the 1st position or both in the 3rd, position or both in the 27th position; in other words, they are at the same spot in the pattern.

Draw a picture that shows that every term in the pattern 11, 21,31 , is 1 more than $3 \frac{1}{3}$ of the matching term in pattern 1. Explain how your picture shows this.

## Spin Red, Green and Blue

On a certain spinner, you are twice as likely to get red as blue and half as likely to get blue as green.
What could the spinner look like? Make it using a spinner and red, blue and green labels.
Test to see if you are right by spinning 10 times to see what happens.

Is there more than one possibility? Explain.

