Year 6

Number Awareness

Week 5

Negative Numbers

Prompts

Look at the sequence of 5 prompts on the following slides

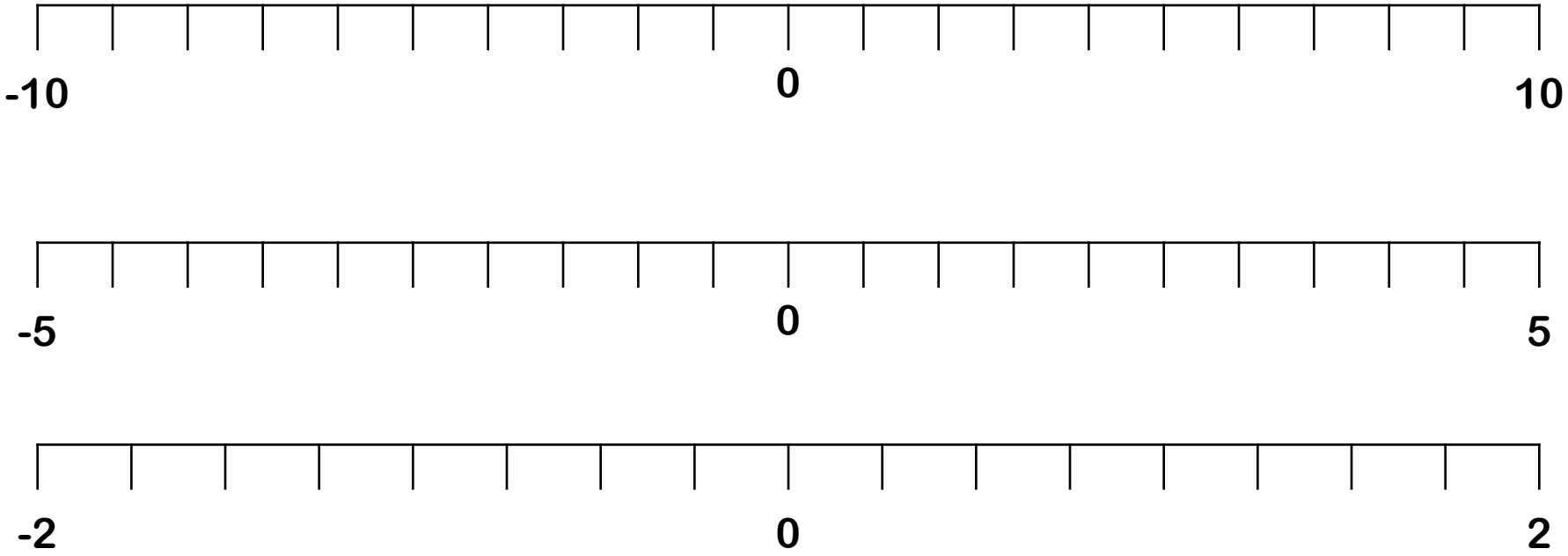
The sequence is designed to prompt Y6 to develop number awareness, and fluency in understanding of negative numbers.

Review the 5 sessions, considering:

- **Variation: how do the different activities harness variation, and how do they relate to each other and progress. What decisions have been made, and how might they be adapted?**
- **Represetation: think carefully about the different decisions we make when using number lines. What kind of 'fluency' is required for a teacher or pupil to use a number line effectively.**
- **Mathematical thinking: where do these activities harness mathematical thinking to develop fluency, and vice versa.**
- **Connections: how do these activities connect different skills and knowledge?**
- **Memory: What is the relationship between memory and reasoning in these activities. What would we hope the students to remember?**

Where is …

Count from left to right and right to left on each number line

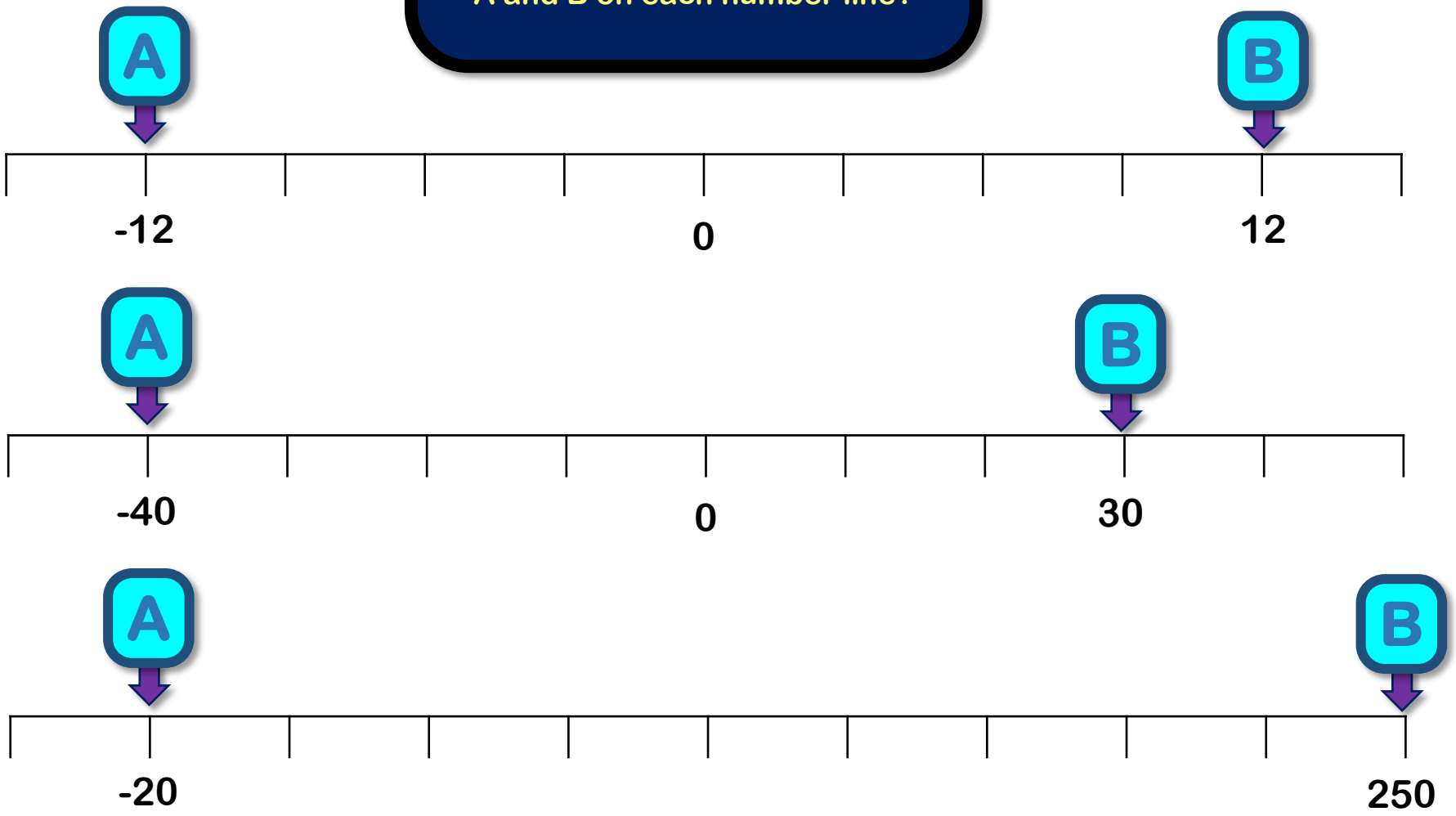


Place these numbers on each number line

- 1
- 0.5
-1.25
- ¼
-1 ¾
-0.75
$-\frac{6}{8}$
1
0.5
- 0.5
¾
1 ¼
1.75
$\frac{10}{8}$

Half-way between

What number is half-way between A and B on each number line?

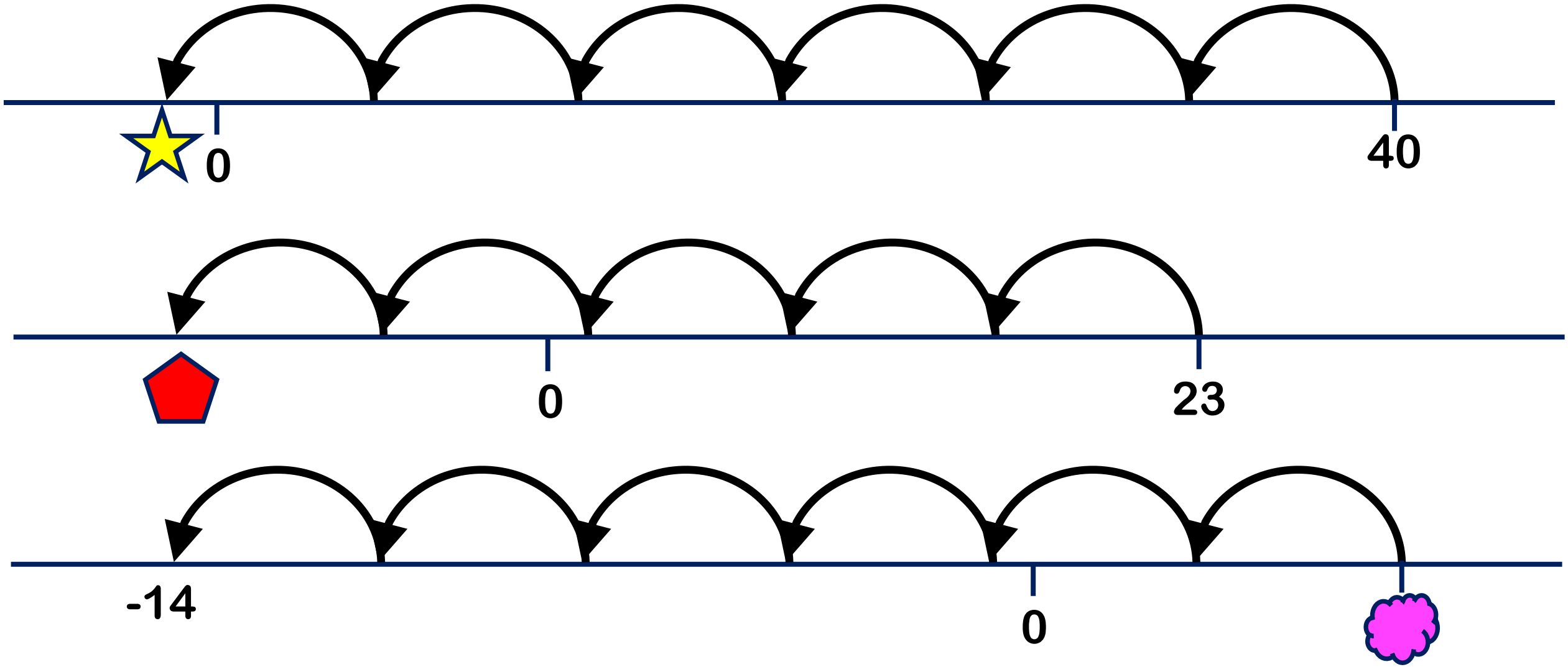


Week 5
Day 3

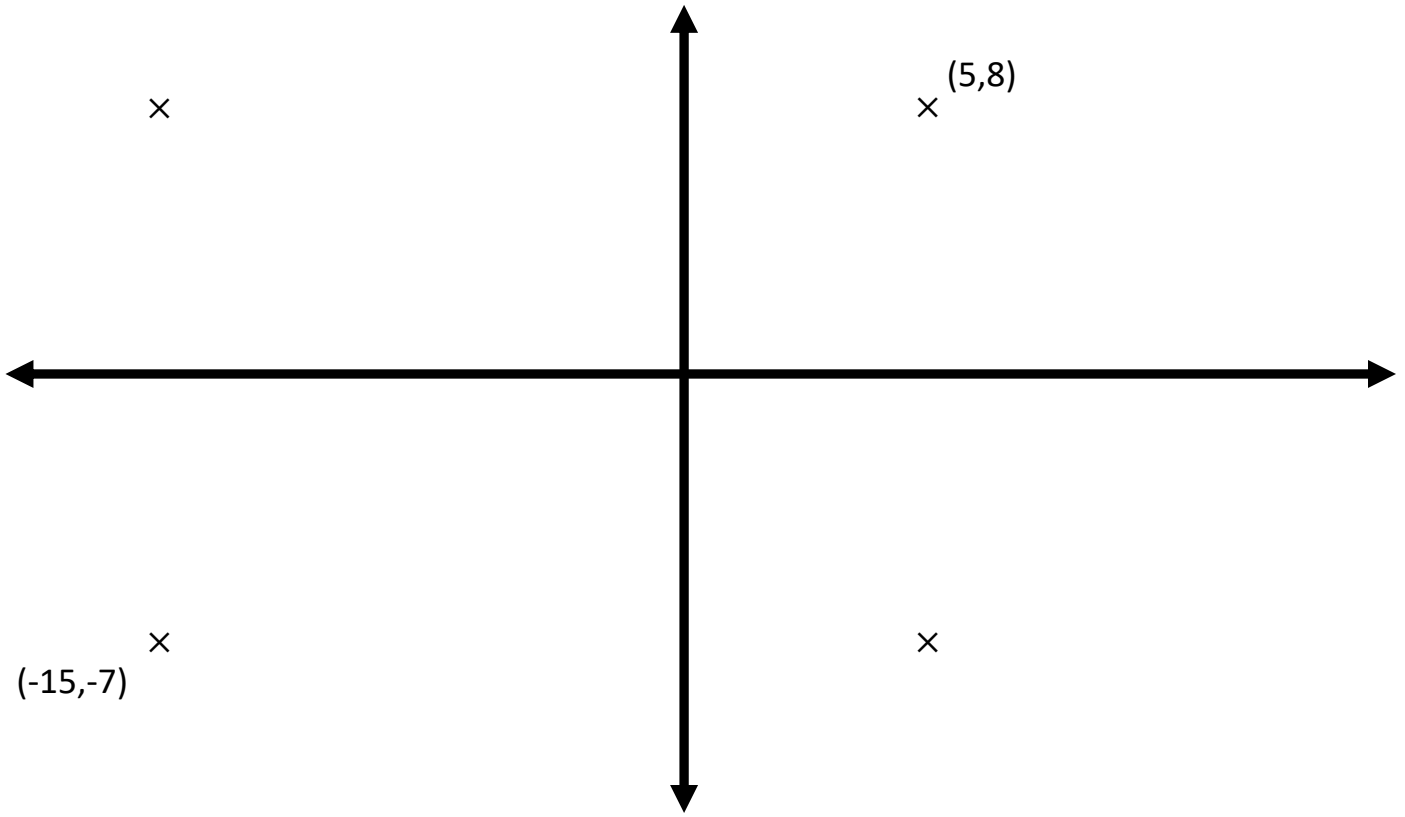
Times-tables?

CODE Maths Hub

Can you work out the mystery numbers?



Coordinates



Each × marks the corner of a rectangle.

What is the area of the rectangle?

Decide if each coordinate is inside or outside the rectangle

Coordinate	Inside?	Outside?
(10, 4)		
(-4, -10)		
(-10, 4)		
(-10, -4)		
(-10, -10)		

Conjectures

Negative numbers do not REALLY exist

0 is a positive number

- 4 is an even number

Decide if you agree or disagree.

What reasons would you give?

–1000 is a bigger number than 999

If you're on 0, then jump back 5, and another 5, and another 5 you land on – 15, so 3 lots of –5 is –15

If you add a number to a negative, you always get a negative answer

Fluency

Look at the following selection.

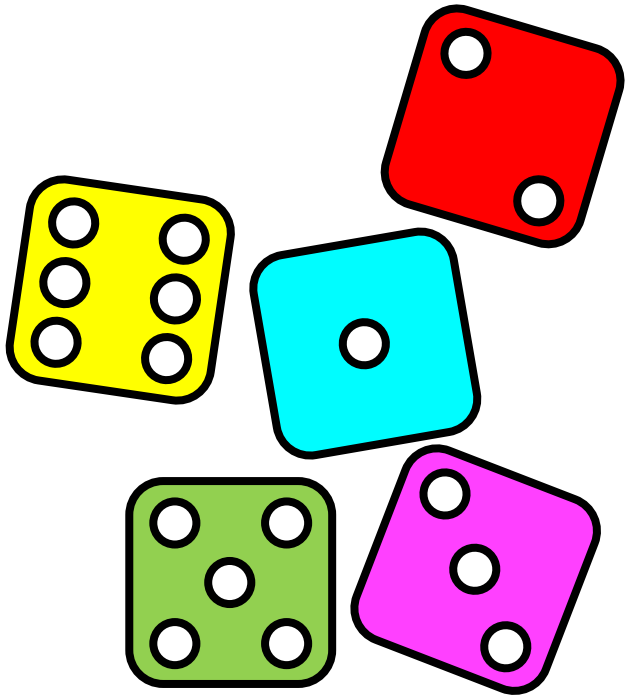
These are from the CODE website:
http://www.codemathshub.org.uk/lockdown-resources/

They are designed to prompt fluency alongside mathematical thinking.

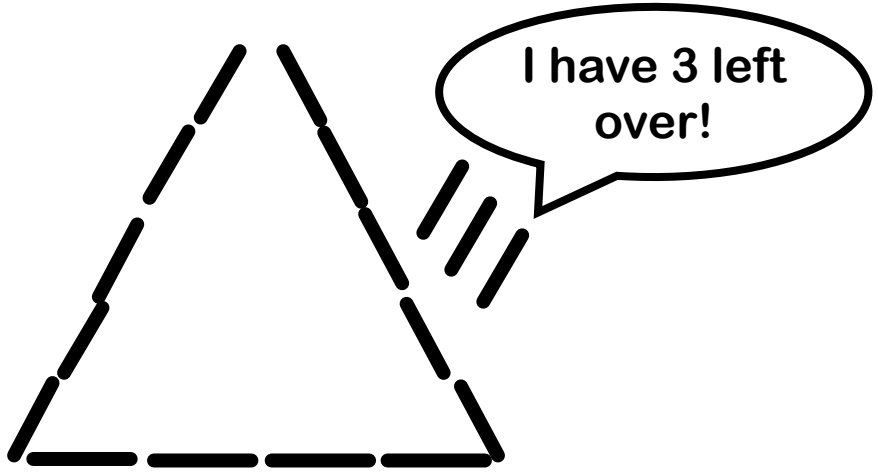
Consider how they could be used to develop Teaching for Mastery across your school:

- **Variation:**
- **Represetation:**
- **Mathematical thinking:**
- **Connections/coherence**

Patterns

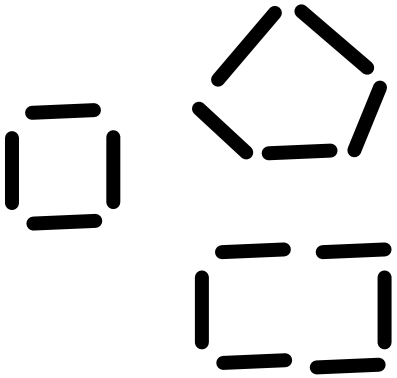


Roll 5 dice. Can you score 17?



Use 17 sticks.

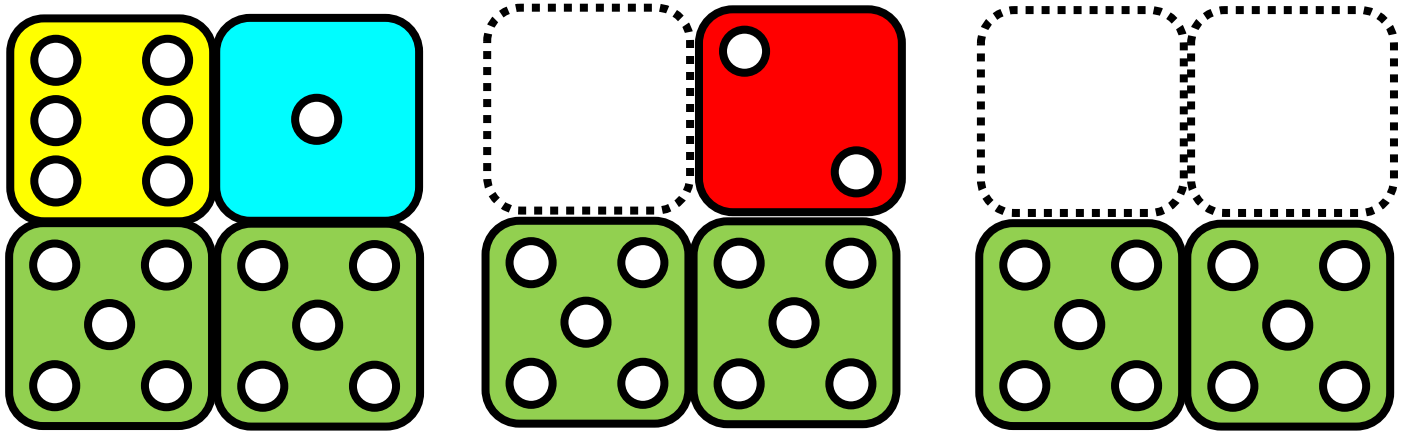
Can you make a triangle using all 17 sticks?



Use 17 sticks or twigs.

How many different shapes can you make at once?

17 is 10 + …



17 = 10 + 1 + ●

17 = 10 + 2 + ⬟

17 = 12 + ★

17 - 12 = ☁

Complete 17 on each set of dice.

Then work out bonds to 17.

Also solve subtractions

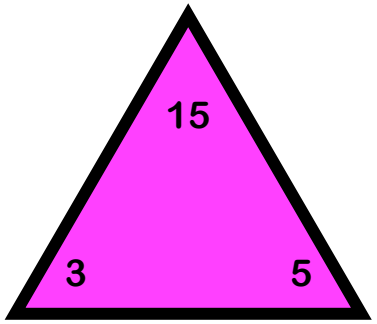
17 = ◆ + 13

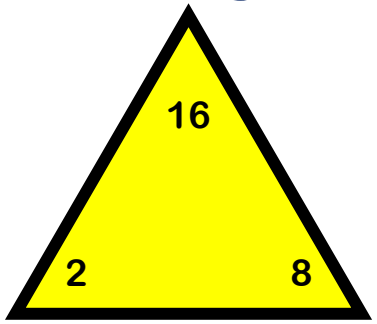
17 = 3 + ▽

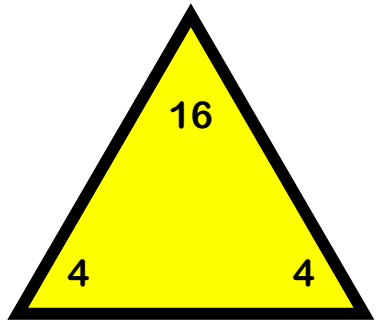
17 - ♥ = 11

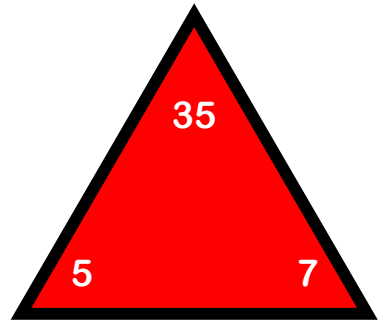
17 - ⬢ = 14

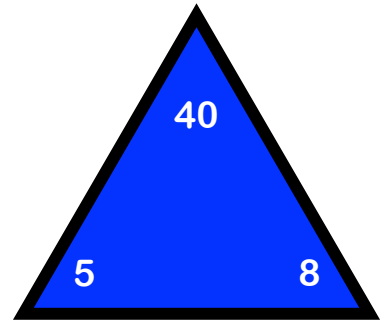
Key factors of the week





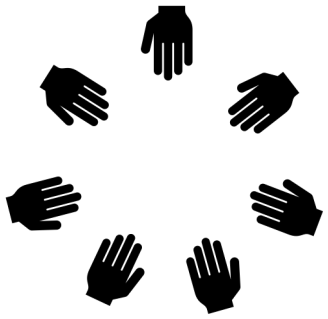


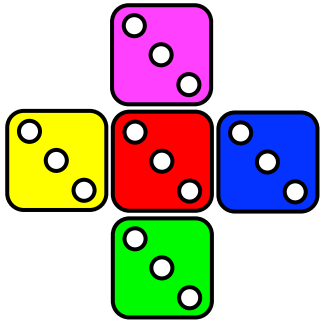


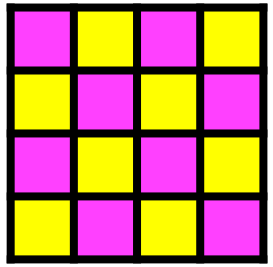


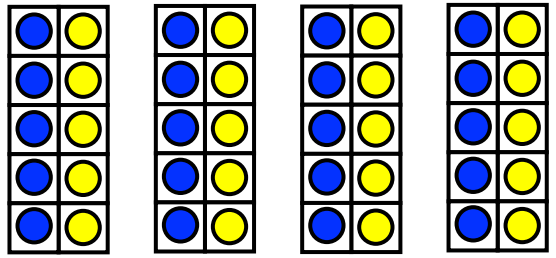
Learn these factor triangles.

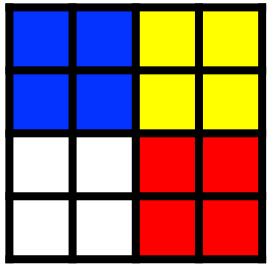
Match each triangle to a diagram.



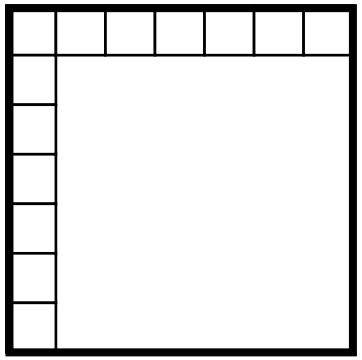


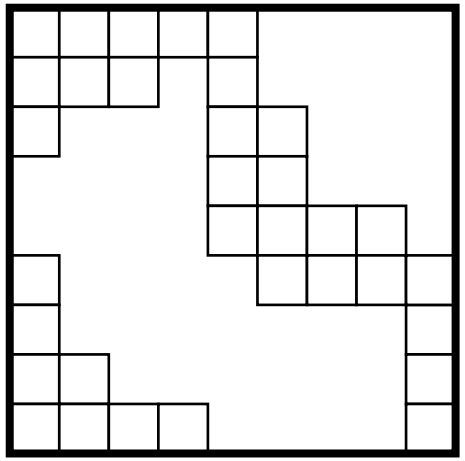




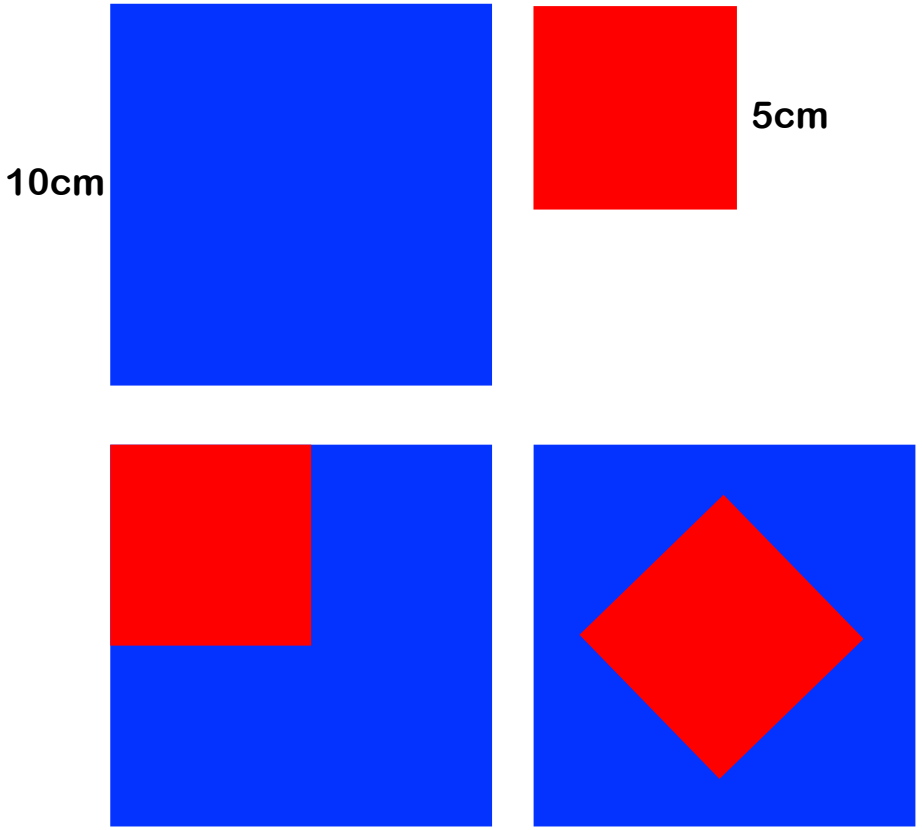


Seeing Squares!

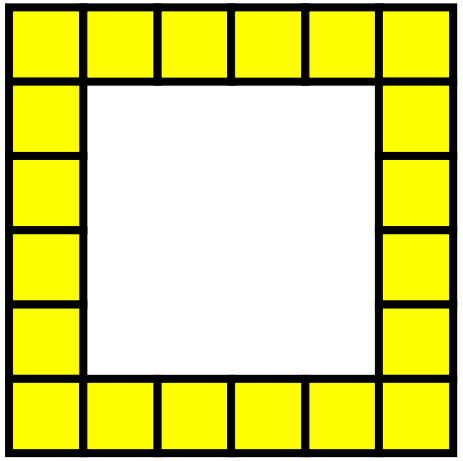


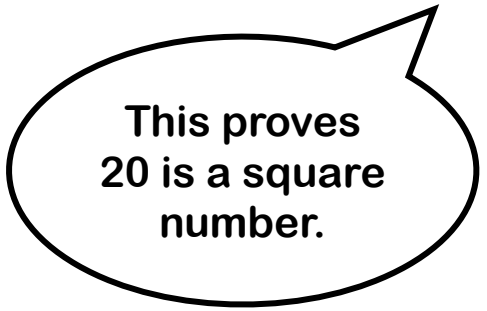


Some of the small tiles have been removed. What size are the whole squares?

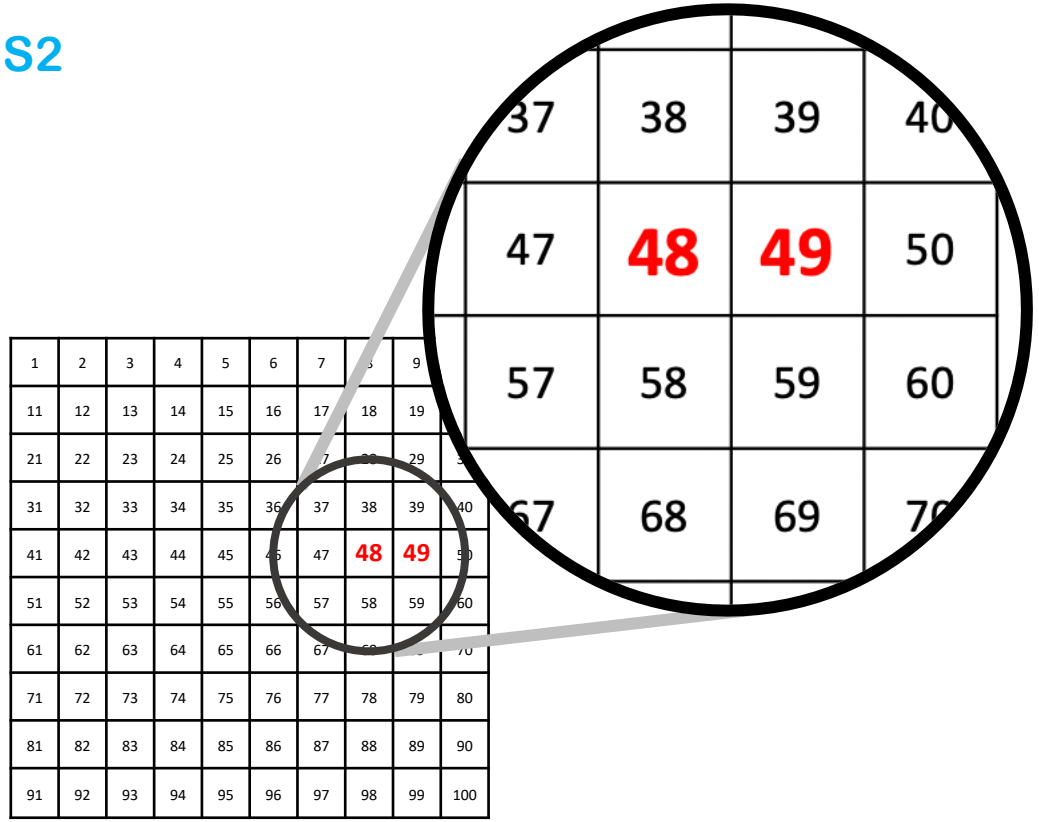


The red square overlaps the blue in different ways. What area of blue can you see now?





What is wrong with this idea?



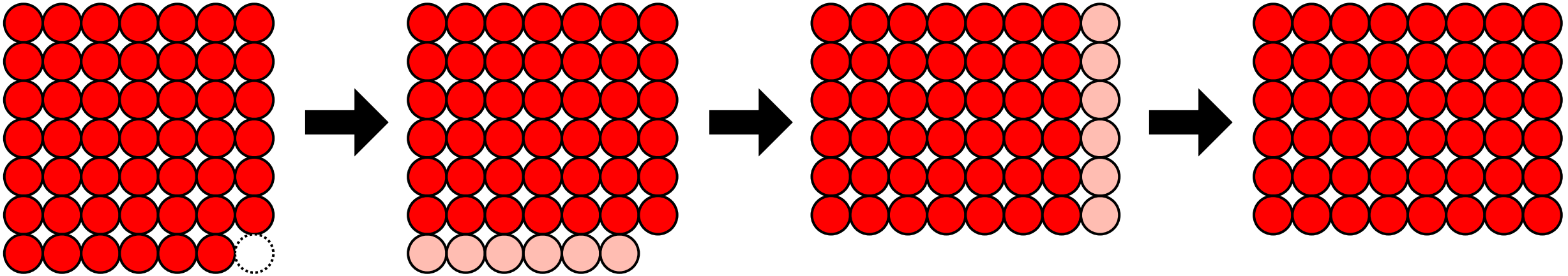
This week we learned about two numbers next to each other: 48 and 49

$$7 \times 7 = 49$$

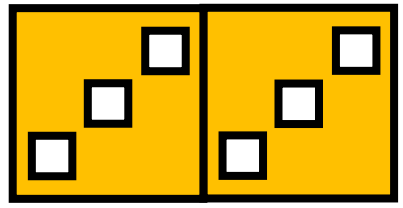
$$6 \times 8 = 48$$

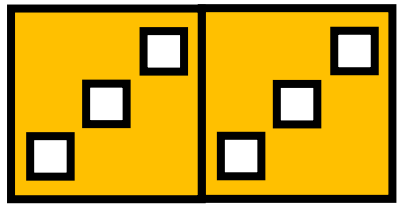
Can you see how to turn 7×7 into 6×8?

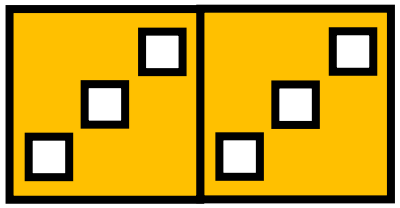
Can you see why 6×8 is one less than 7×7 ?

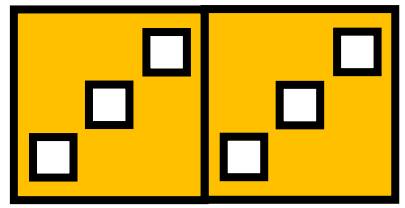


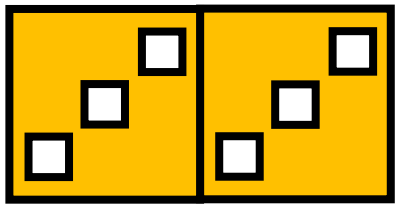
Number 42

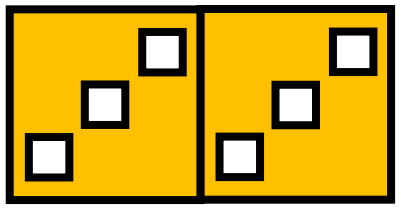


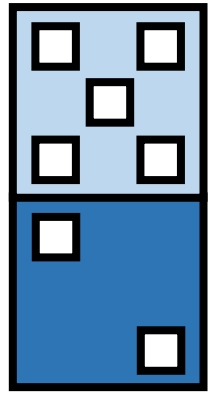


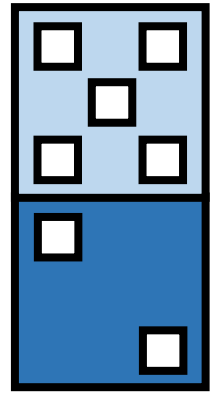


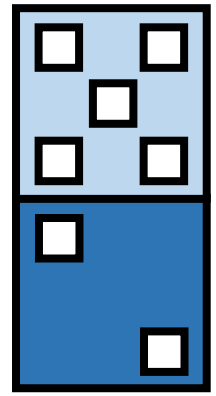


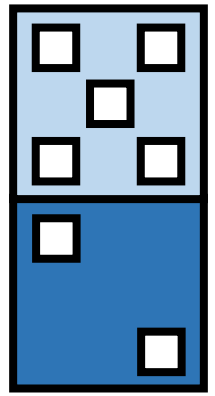


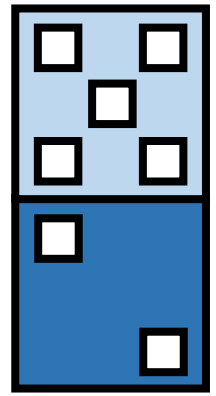


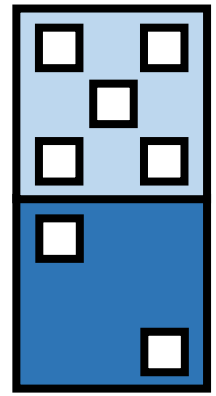












Look at these dominoes.

What equal groups do they show?

Find times-table facts for 42

Hmm. If I know 7 times 3…

I know my 5 times table, and my twos, so…

Further development

- Which aspects of teaching fluency do you want to develop more?
  - Speed
  - Accuracy
  - Meta-cognition
  - Rehearsal
  - Reasoning