

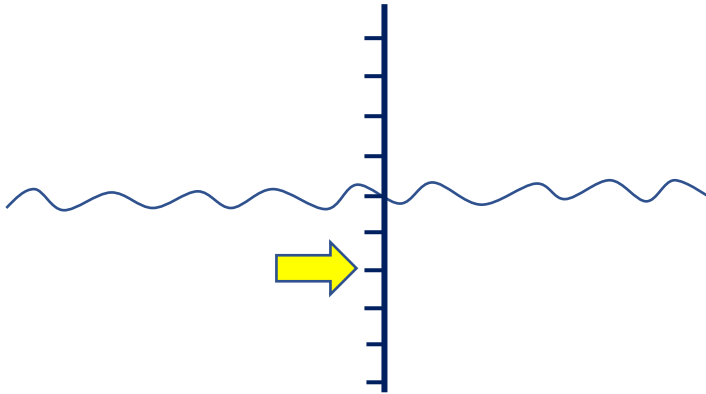
## Out at sea

### Activity 1

**Focus of activity:** Understanding negative numbers.

#### Working together: conceptual understanding

- Show children a video clip such as the following to explain heights above and below sea level. (This video explains heights above and below in feet, but the principle is the same for metres. <http://mashupmath.com/blog/2017/3/2/how-to-teach-kids-to-understand-elevation-above-and-below-sea-level>)
- Draw a wavy line to represent the sea and draw a vertical marked but unnumbered line.



- Write 0 at sea level. Stick an arrow pointing to the second mark below sea level and say that this is 2 metres below sea level. Show how we can write this as  $-2\text{m}$ . Say that this can be read as 'negative 2' and sometimes 'minus 2'.
- Move the arrow up and down the scale asking children to write on their whiteboards the numbers it is pointing to.
- Shuffle a set of  $-5$  to  $5$  cards. Explain that these numbers are a mix of positive numbers, zero and negative numbers – the numbers before zero on the number line. Ask children to help you to put them in order from smallest to greatest.

#### Up for a challenge?

*A fish is at  $-3\text{m}$ . It swims up a metre. What is its depth now?*

#### Now it's the children's turn:

- Children choose a fish or bird from the picture without telling their partner. They write the height above or below sea level, e.g.  $3\text{m}$  or  $-4\text{m}$ . Their partner points to the fish or bird they think the child is thinking of. Both earn a point if they agree. Swap roles and repeat. Can they reach 10 points?
- Go round the group and observe them as they play. You may wish to make notes as a record.

#### **S-t-r-e-t-c-h:**

If children cope well, ask them to write the missing numbers in this number sequence:  $-10 -9 \square -7 -6$   
 $\square -4 -3 -2 -1 \square 1 \square 3$ .

### Things to remember

Remember that negative numbers are numbers which come before zero. We use negative numbers when talking about sea level and temperature. Lay the -5 to 5 number cards in order from left to right as children see them. As they close their eyes turn over 2 cards. They write on their whiteboards which numbers are missing. Repeat.

You may want to add something that has emerged from the activity. This may refer to misconceptions or mistakes made.

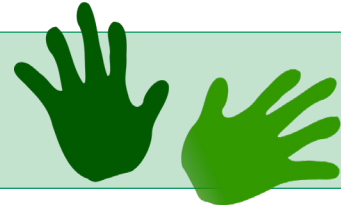
<b>Resources</b> <ul style="list-style-type: none"><li>• Video about sea level, e.g. <a href="http://mashupmath.com/blog/2017/3/2/how-to-teach-kids-to-understand-elevation-above-and-below-sea-level">http://mashupmath.com/blog/2017/3/2/how-to-teach-kids-to-understand-elevation-above-and-below-sea-level</a></li><li>• Flipchart, pens, arrow and Blu-tac®</li><li>• -5 to 5 number cards</li><li>• Sea picture (see child instructions)</li></ul>	<b>Outcomes</b> <ol style="list-style-type: none"><li>1. Children can understand positive and negative numbers.</li><li>2. Children begin to count on and back through zero.</li></ol>
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## Out at sea Activity 1

*Work in pairs*

### Things you will need:

- A sea picture



### What to do:

- Choose a fish or bird from the picture without telling your partner.
- Write the height above or below sea level, e.g. 3m or -4m.
- Your partner points to the fish or bird they think you chose.
- Is your partner right? If so, you both earn a point.
- Swap roles and repeat.
- Can you reach 8 points?

### *S-t-r-e-t-c-h:*

Write the missing numbers in this number sequence.

-10 -9  -7 -6  -4 -3 -2 -1  1  3

### Learning outcomes:

- I understand positive and negative numbers.
- I am beginning to count on and back through zero.

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Activity 1

