Year 4 Maths No Problem workbook, Chapter 12, lessons 1 – 8, 15/06/20

Lesson 1: Knowing Types of Angles

Textbook pages: 158 – 161

Lesson Objective

To be able to identify right, acute and obtuse angles.

Lesson Approach

To begin this lesson, show pupils the In Focus task and ask them to identify the 3 types of angles in the triangles. Demonstrate how to mark an angle and a right angle. Ask them to label all the acute angles using the letter 'a' and all the obtuse angles using the letter 'o'.

Work through Let's Learn discussing the names of each type of angle. Then ask pupils to try drawing a quadrilateral that has all the 3 types of angles. Is this possible? How many of such quadrilaterals can they draw? Remind pupils that a quadrilateral is a shape with 4 sides. Give them some time to draw. Then compare what they have drawn with Let's Learn 4 and identify all the acute, right and obtuse angles in the quadrilaterals.

During Guided Practice, pupils are identifying angles in various shapes.

Lesson 2: Comparing Angles

Textbook pages: 162 – 164

Lesson Objective

To be able to compare and order angles by size.

Lesson Approach

To begin this lesson, show pupils the In Focus task and ask them if they can compare the sizes of the 4 angles in Figure ABCD. Encourage them to use the terms 'more than a right angle' and 'less than a right angle'. Give them time to practise this with their partners and then share what they discussed. Prompt pupils with questions, such as: How do you know? How can you check? Which angle do you think is smallest/largest? If we record our findings using < and >, how can we arrange the 4 angles? Guide pupils to see that the comparison can be done by comparing the sizes of one angle to another.

During Guided Practice, pupils are comparing and ordering angles.

Lesson 3: Classifying Triangles

Textbook pages: 165 – 168

Lesson Objective

To be able to compare and classify triangles.

Lesson Approach

To begin this lesson, show pupils the In Focus task and ask them what is the same and what is different about the triangles. Allow them to consider this and share their ideas with the class. Encourage them to talk about the triangles without referring to them by their actual 'name'. Ask them to sort the triangles according to their own criteria and allow some time for discussion and feedback. Is it possible to sort the triangles using different criteria? Who has sorted the shapes three ways? Display the images from Let's Learn and discuss how the children have sorted the shapes. What makes an equilateral/isosceles/scalene triangle? How can you find the perimeters of the triangles?

During Guided Practice, pupils are identifying triangles by their side properties. Encourage pupils to check the lengths of the sides using a ruler. An isosceles triangle has two sides of the same length and consequently two angles are equal. Point out that this definition includes an equilateral triangle as a special case, i.e. an equilateral triangle is also isosceles.

Lesson 4: Classifying Quadrilaterals

Textbook pages: 169 – 173

Lesson Objective

To be able to compare and classify quadrilaterals.

Lesson Approach

To begin this lesson, show pupils the shapes from the In Focus task and ask them if they know what quadrilaterals are. Can you sort the quadrilaterals? Ask pupils to talk to their partners and then share their thoughts.

Discuss the sorting done by 4 children in Let's Learn with the class. Display Let's Learn 1: How do you think Holly has sorted the quadrilaterals? Display Let's Learn 2: How do you think Charles has sorted the quadrilaterals? What do all of the quadrilaterals have in common? What else can you say about the quadrilaterals? Display Let's Learn 3: In what ways could Hannah have sorted them? Give pupils time to talk to their partners and feed back their ideas. What are the names of the shapes in group 2? How do you know? What do they all have in common?

Lastly, display Let's Learn 4. How many ways have the shapes been sorted now? How do you know? What are the similarities of each shape in the sorting diagram? What makes a quadrilateral a rhombus? What makes a quadrilateral a parallelogram?

During Guided Practice, pupils are identifying quadrilaterals by their properties.

Lesson 5: Identifying Symmetrical Figures

Textbook pages: 174 – 178

Lesson Objective

To be able to identify lines of symmetry in 2-D shapes.

Lesson Approach

To begin this lesson, provide pupils with paper squares and rectangles. Is it possible to fold the shapes in half so that one half completely overlaps with the other half? How many ways can you do it? Give them time to explore different ways of folding accurately and then collect and record responses on a flipchart.

Work through Let's Learn 1 to 3. Ask the class how many of them folded the square as shown in the images. Emphasise both sides of the fold line are identical and the fold line is known as the line of symmetry. How many lines of symmetry did we find on the rectangle/square?

Next, display images from Let's Learn 4 to 6 and allow pupils time to consider the lines and try the folds. Prompt them by asking questions, such as: Which rectangles show lines of symmetry? Why is this not a line of symmetry? Ask pupils to discuss this with their partners and feed back their thoughts.

During Guided Practice, pupils are identifying and drawing lines of symmetry in 2-D shapes.

Lesson 6: Drawing Lines of Symmetry

Textbook pages: 179 – 180

Lesson Objective

To be able to identify lines of symmetry in 2-D shapes.

Lesson Approach

To begin this lesson, show pupils the In Focus task and allow them to discuss the question with their partners before sharing their answers with the class. You could provide pupils with a paper copy of the figure to test ideas.

Display Let's Learn 1: Who thinks this shows a line of symmetry? How do you know? Did anyone do it a different way? Display Let's Learn 2: How did you know the bottom half was a reflection of the top half? Where is the line of symmetry? Display Let's Learn 3: Why is this not a line of symmetry? Can you find any other lines of symmetry? Allow pupils to talk to their partners and feed back their thoughts.

During Guided Practice, pupils are finding lines of symmetry in figures.

Lesson 7: Completing Symmetrical Figures

Textbook pages: 181 – 183

Lesson Objective

To be able to complete a simple symmetric figure with respect to a specific line of symmetry.

Lesson Approach

To begin this lesson, show pupils the In Focus task and ask them what they can see. State that the image is only one half of a symmetrical figure. What might the other half look like? How can we check we are correct? Allow pupils time to experiment and then ask them to share their ideas. Ask them where the mirror line could be. Work through Let's Learn drawing the other half of the figure as shown. For Let's Learn 2, prompt pupils by asking questions, such as: How does Amira know that the point should be drawn there? Why is it important we draw the points accurately?

During Guided Practice, pupils are completing symmetrical figures based on the lines of symmetry given.

Lesson 8: Making Symmetrical Figures

Textbook pages: 184 – 186

Lesson Objective

To be able to draw a line of symmetry for a 2-D shape.

Lesson Approach

To begin this lesson, show pupils the In Focus task and provide them with a few square pieces of paper each. Discuss the problem with pupils and ask if they can identify where the ink will be reflected on the square paper after it is folded as shown. Give pupils some time to work on this and then share their answers. What if the square paper was folded using another line of symmetry? Where would the ink mark be reflected? Allow them to experiment using different lines of symmetry. Then work through the three ways of folding in Let's Learn.

During Guided Practice, pupils are drawing lines of symmetry based on the given reflections.