

SIMPLIFYING MULTIPLICATION AND DIVISION USING FACTORS.

INVESTIGATIONS OVERVIEW PAGE

THIS PAGE IS A SUMMARY OF THE INVESTIGATIONS THAT STUDENTS MAY ENGAGE IN TO DEEPEN THEIR RELATIONAL UNDERSTANDING. INVESTIGATIONS WITH INSTRUCTIONS TO STUDENTS FOLLOW ON SUBSEQUENT PAGES.

- In pairs, children use cards to create a division number sentence. They create an equivalent division number sentence by dividing both numbers by a common factor. They check that the number sentences are equivalent by performing the 2 divisions. *Reflection: How can we simplify division by creating equivalent divisions by dividing by a common factor?*
- In pairs, children use cards to create a multiplication number sentence. They create an equivalent multiplication number sentence by dividing one number and multiplying the other number by the same number. They check that the number sentences are equivalent by performing the 2 multiplications. *Reflection: How can we create equivalent multiplications by dividing and multiplying by a factor?*
- In pairs, children construct rectangles using square centimetres. They work out the rectangle's area. They halve the length of one dimension while doubling the length of the other dimension. They work out the new rectangle's area. They discuss why the area remained the same. *Reflection: How can we create shapes with equivalent areas by dividing one dimension and multiplying the other dimensions by a factor?*
- Children create areas of hectares in shapes other than squares using common factors. For example, a square hectare is 100 m by 100m. If we halve 1 dimension and double the other dimension, we get 50 m by 200 m which is still a hectare because it is still 10 000 square metres. (Links to Measurement and Geometry 52) *Reflection: How can we create shapes with equivalent areas by dividing one dimension and multiplying the other dimensions by a factor?*

Simplifying Multiplication and Division using Factors

Use cards to create a division number sentence.

Create an equivalent division number sentence by dividing both numbers by a common factor.

Check that the number sentences are equivalent by performing the 2 divisions.

Reflection: How can we simplify division by creating equivalent divisions by dividing by a common factor?

!

Simplifying Multiplication and Division using Factors

Use cards to create a multiplication number sentence.

Create an equivalent multiplication number sentence by dividing one number and multiplying the other number by the same number.

Check that the number sentences are equivalent by performing the 2 multiplications.

Reflection: How can we create equivalent multiplications by dividing and multiplying by a factor?

Simplifying Multiplication and Division using Factors

Sit with a friend.

Construct a rectangle using square centimetres.

Work out the rectangle's area.

Halve the length of one dimension while doubling the length of the other dimension.

Work out the new rectangle's area.

Discuss why the area remained the same.

Reflection: How can we create shapes with equivalent areas by dividing one dimension and multiplying the other dimensions by a factor?

Simplifying Multiplication and Division using Factors

Sit with a friend.

Create areas of hectares in shapes other than squares by halving the length of one dimension while doubling the length of the other dimension.

For example, a square hectare is 100 m by 100m.

If we halve 1 dimension and double the other dimension, we get 50 m by 200 m.

Does this shape still have the area of a hectare? Why?

Reflection: How can we create shapes with equivalent areas by dividing one dimension and multiplying the other dimensions by a factor?