



Maths

Multiplication and Division

Equivalence



Aim

- I can solve missing number problems to make the calculations on each side of the equals sign balance.

Success Criteria

- I know what the equals sign means.
- I can make the calculations on both side of the equals sign equivalent.

Missing Numbers



How many of these missing numbers can you find in 10 minutes?

$3 \times 12 =$

$64 = ?^2$

$9 = 81 \div ?$

$6 \times ? = 36$

$7 \times ? = 63$

$72 = ? \times 8$

$12 \div ? = 3$

$144 \div ? = 12$

$\sqrt{?} = 4$

$7^2 = ?$

$21 = 7 \times ?$

$60 = ? \times 3$

$5 = 25 \div ?$

$8 \times ? = 56$

$9 \times ? = 36$

$77 = ? \times 7$

$24 \div ? = 6$

$132 \div ? = 12$

$\sqrt{?} = 7$

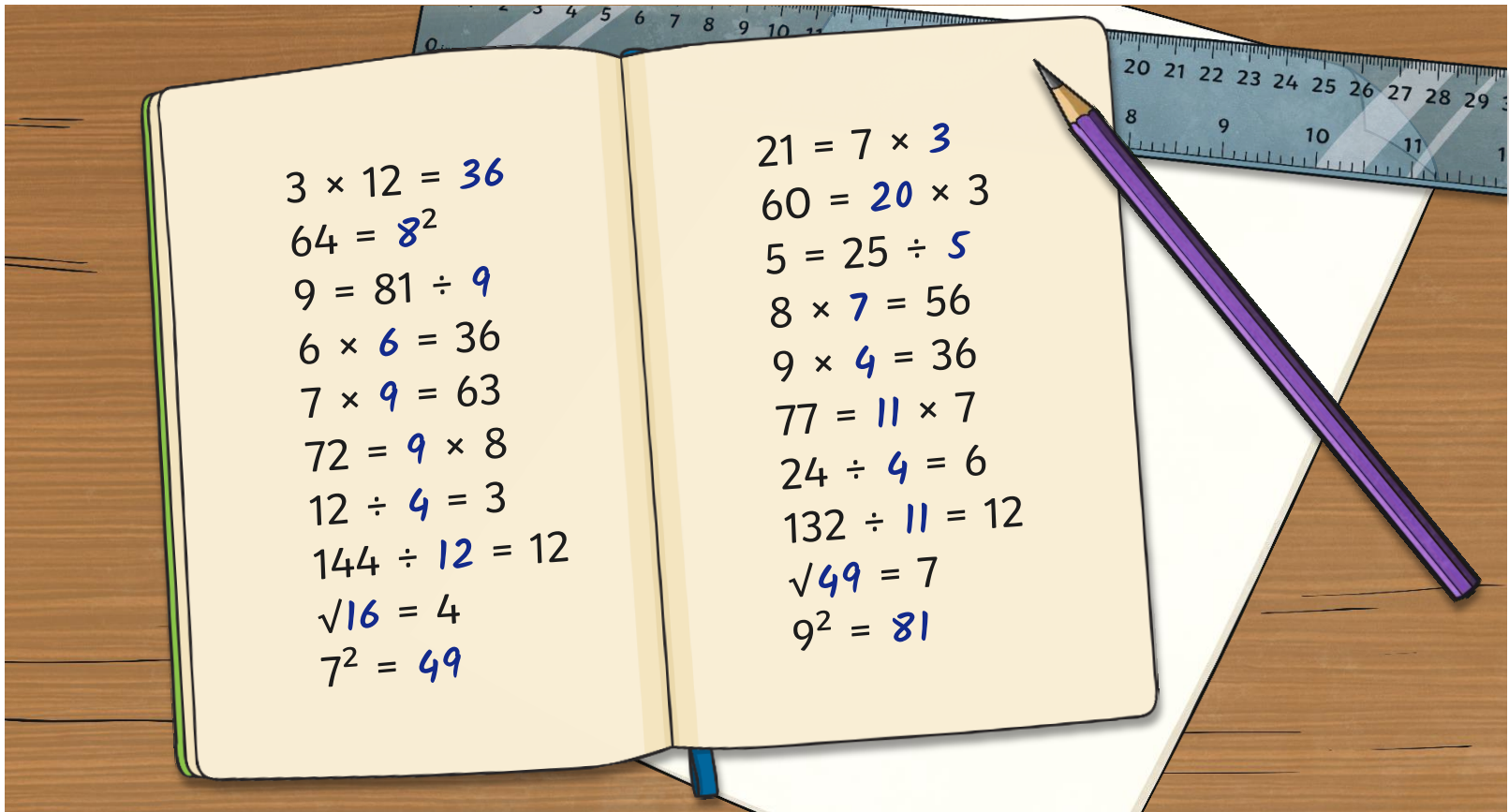
$9^2 = ?$



Missing Numbers Answers

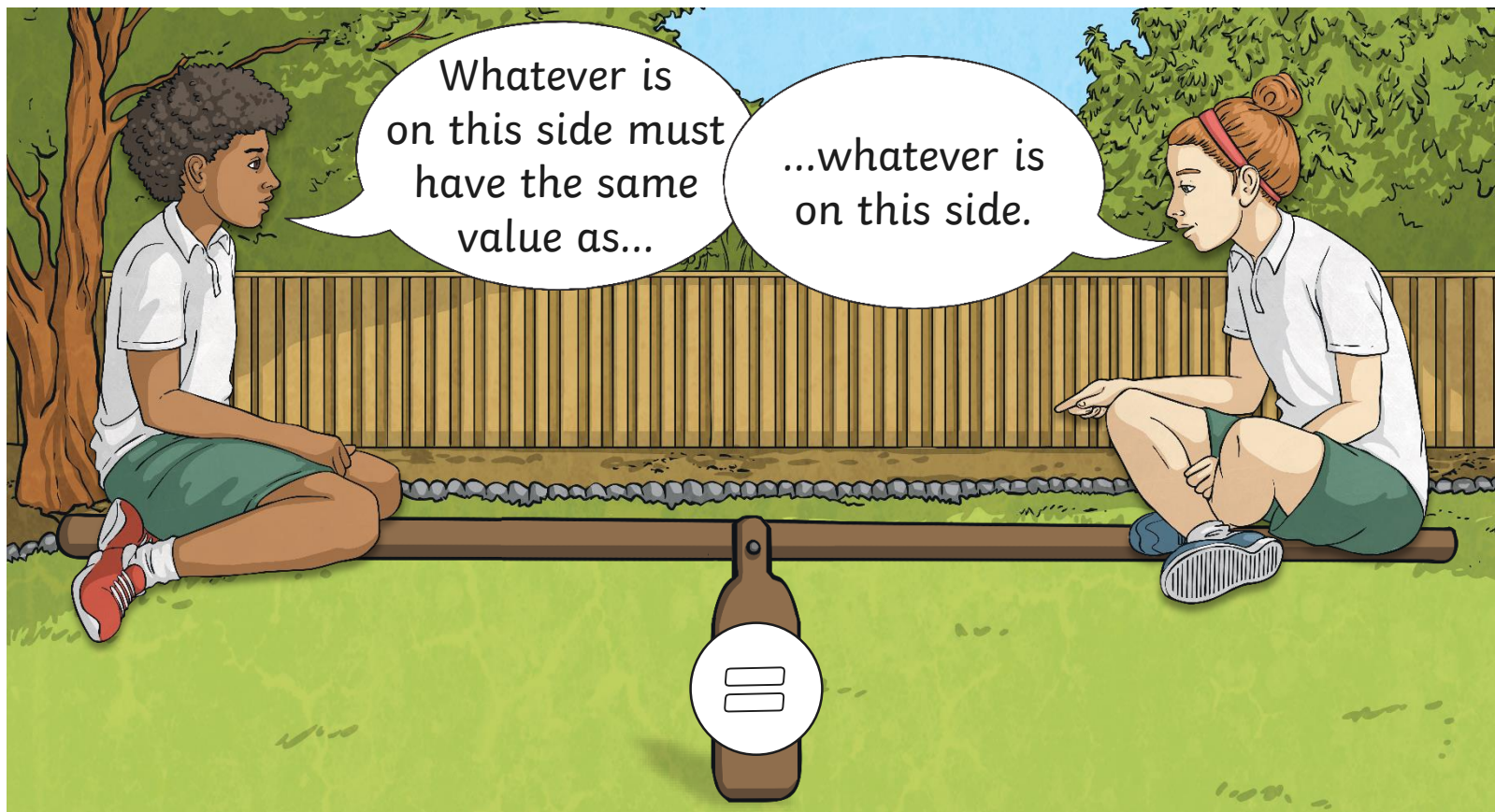


How did you do?



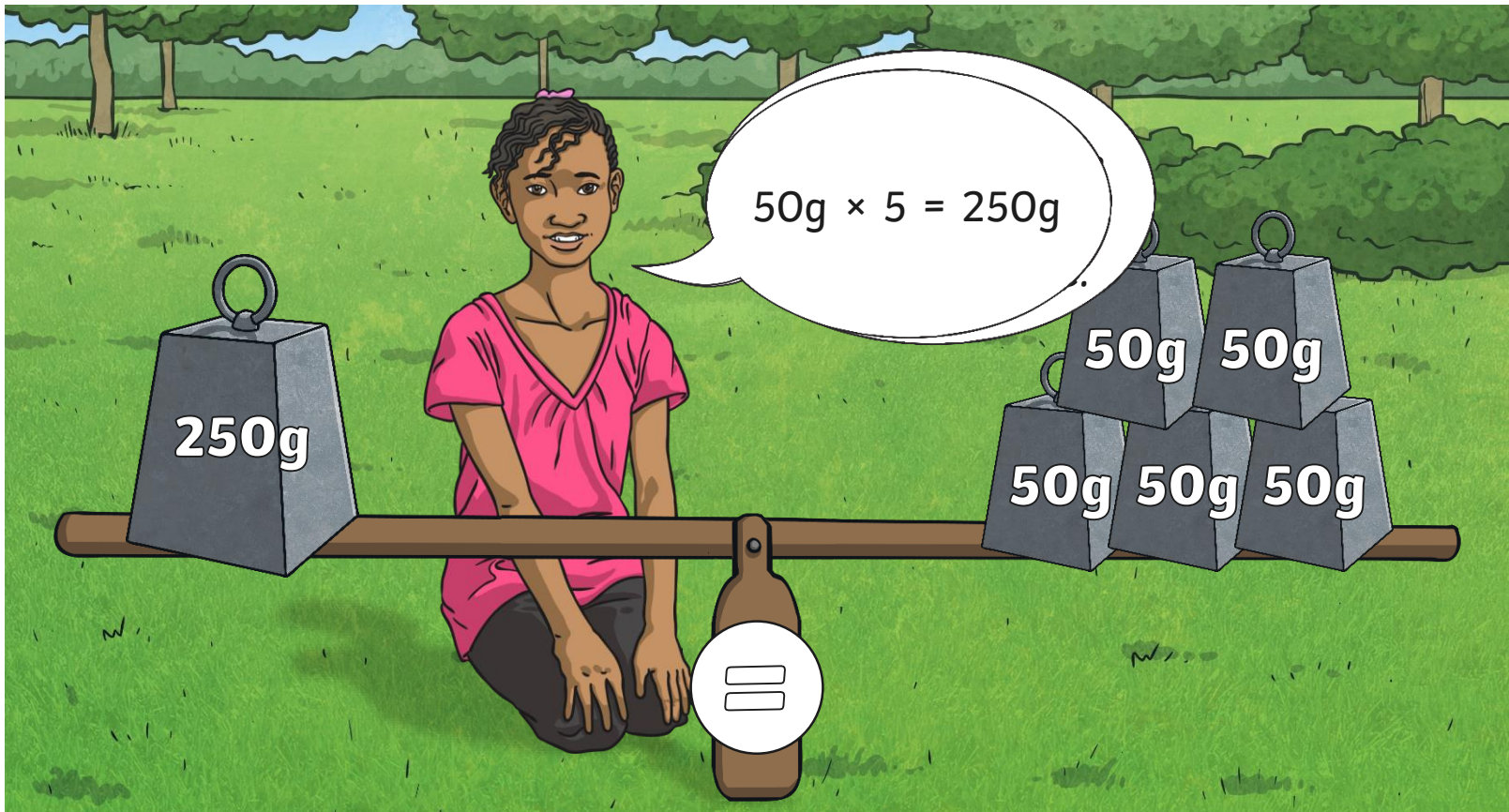
See-Saw

The equals sign means that the numbers or calculations on either side of the sign must have the same value.



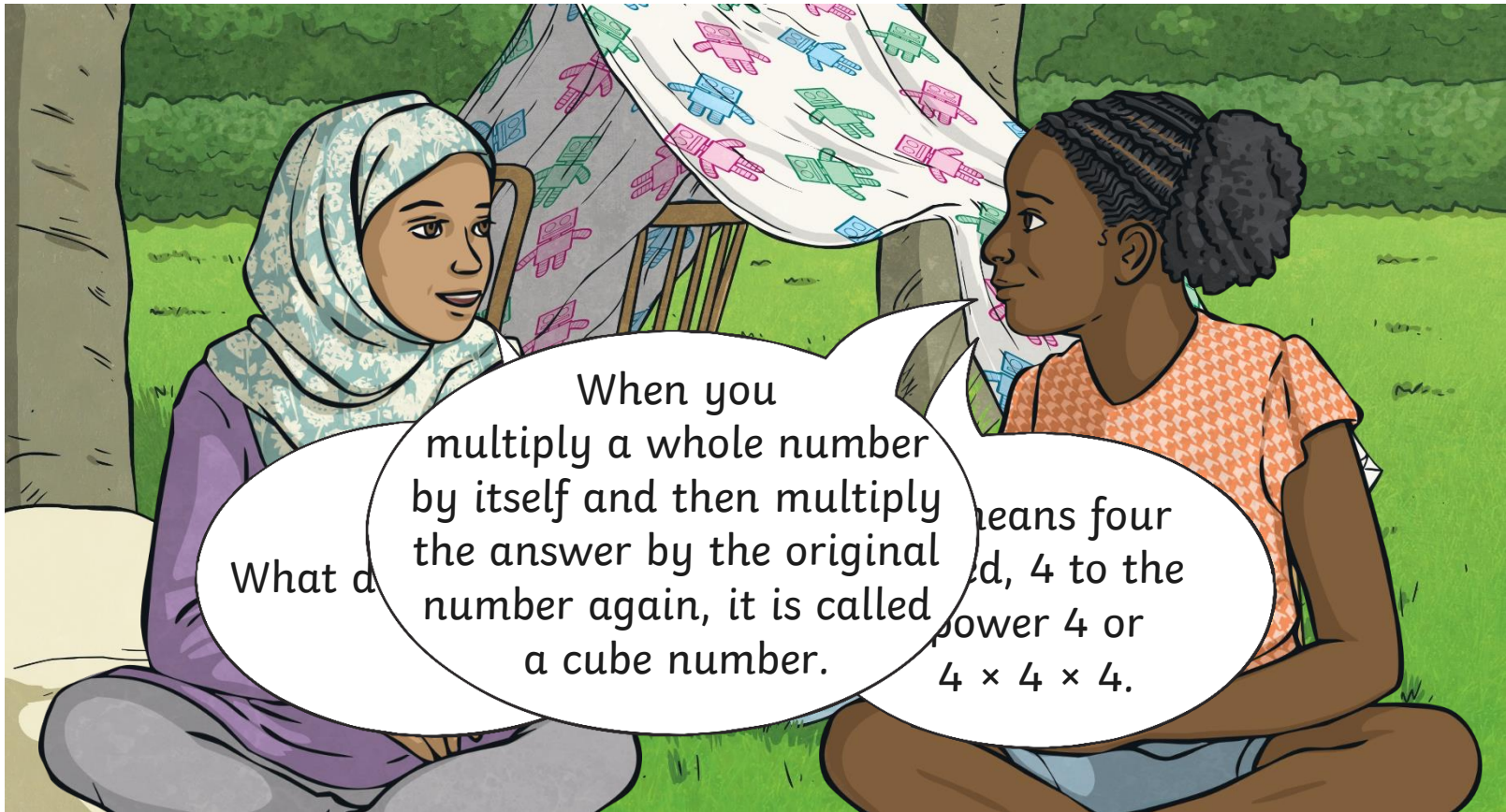
See-Saw

The two sides won't always look the same,
but they must have the same value.



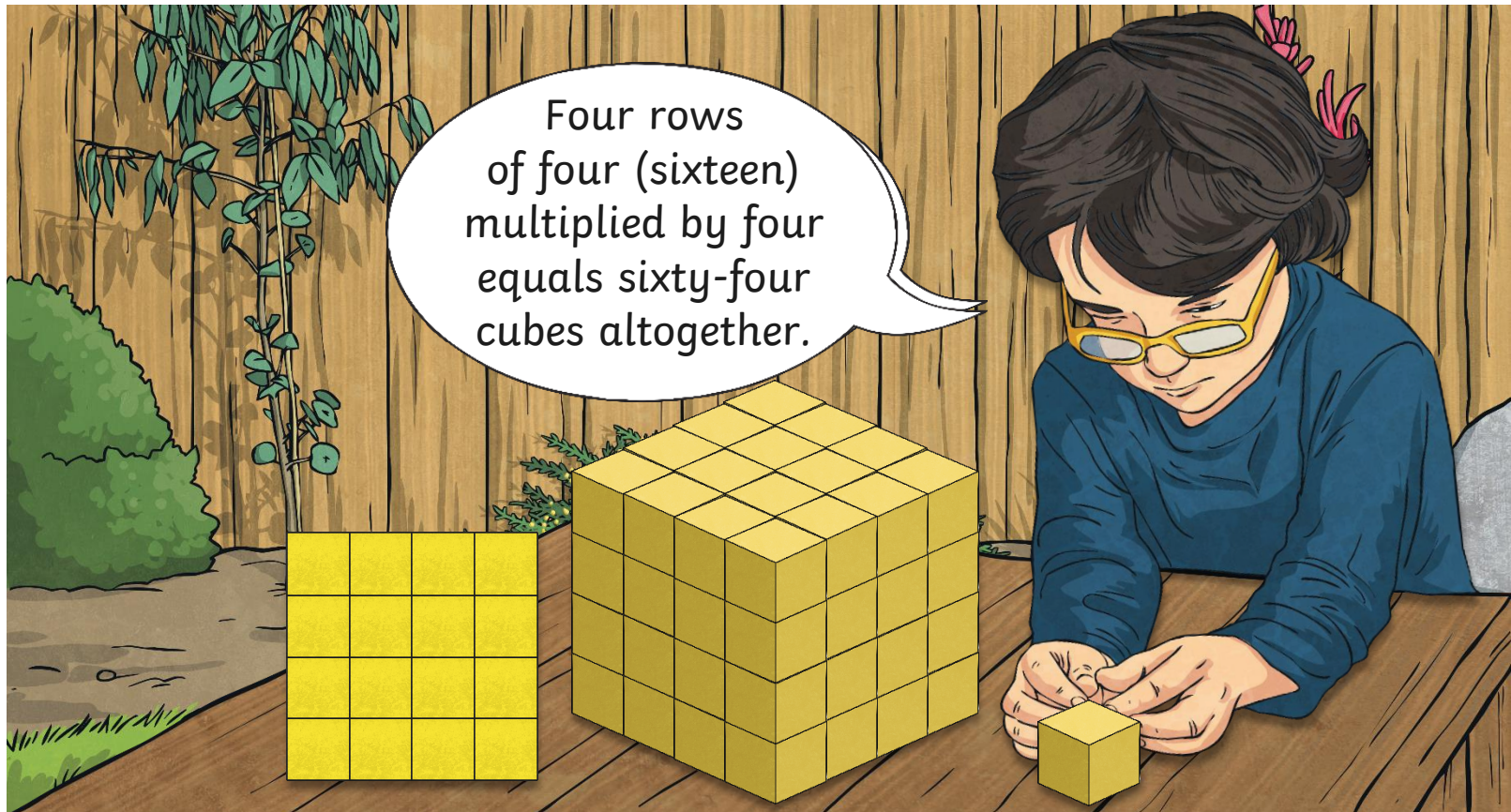
Square and Cube Numbers

What are square and cube numbers?



Square and Cube Numbers

When you multiply a whole number by itself and then multiply the answer by the original number again, it is called a cube number.



Powers



When you see a small number next to a number, it is called a power.
 3^2 and 3^3 are examples of this.

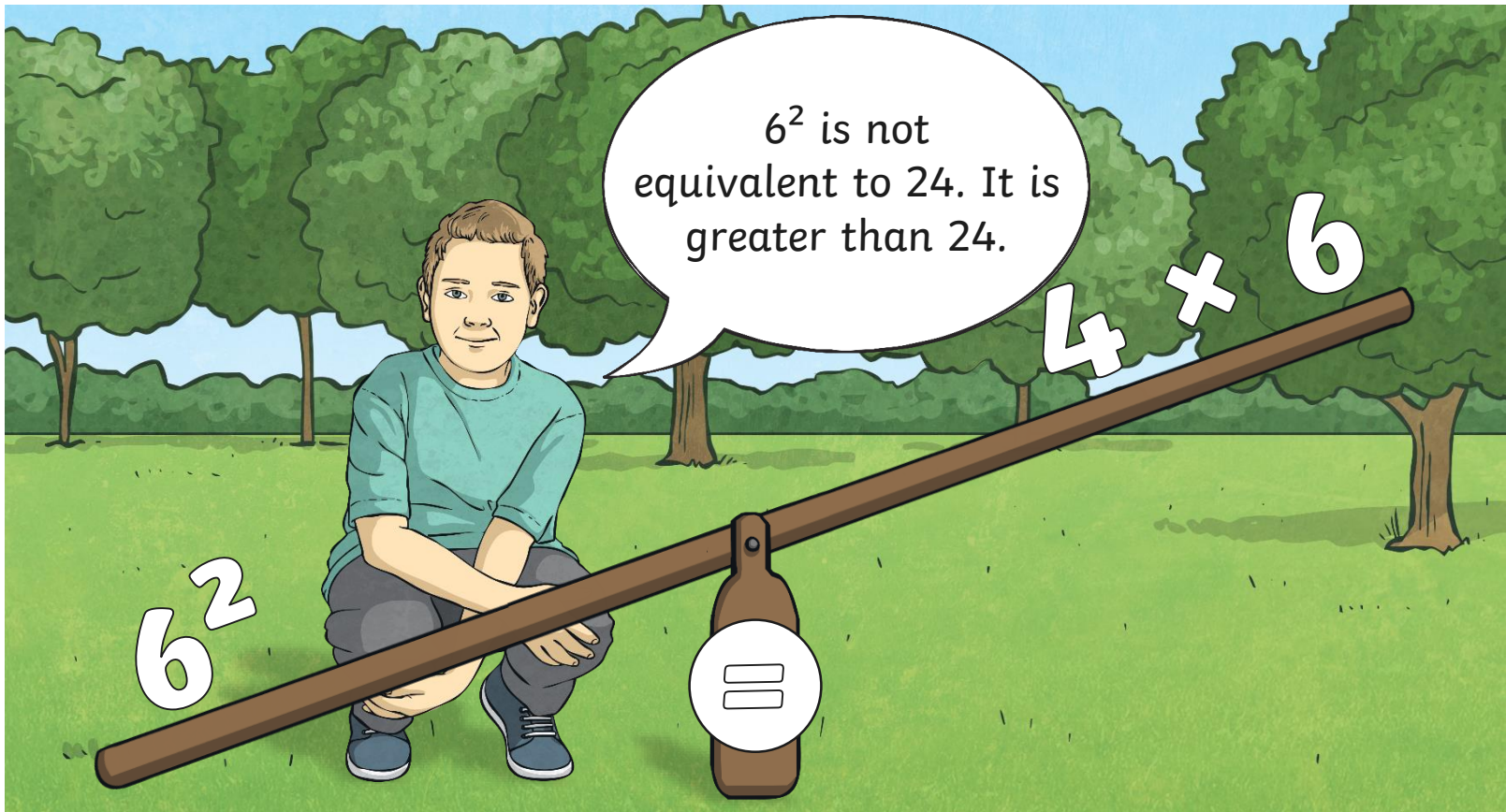


Balance



What does equivalence mean?

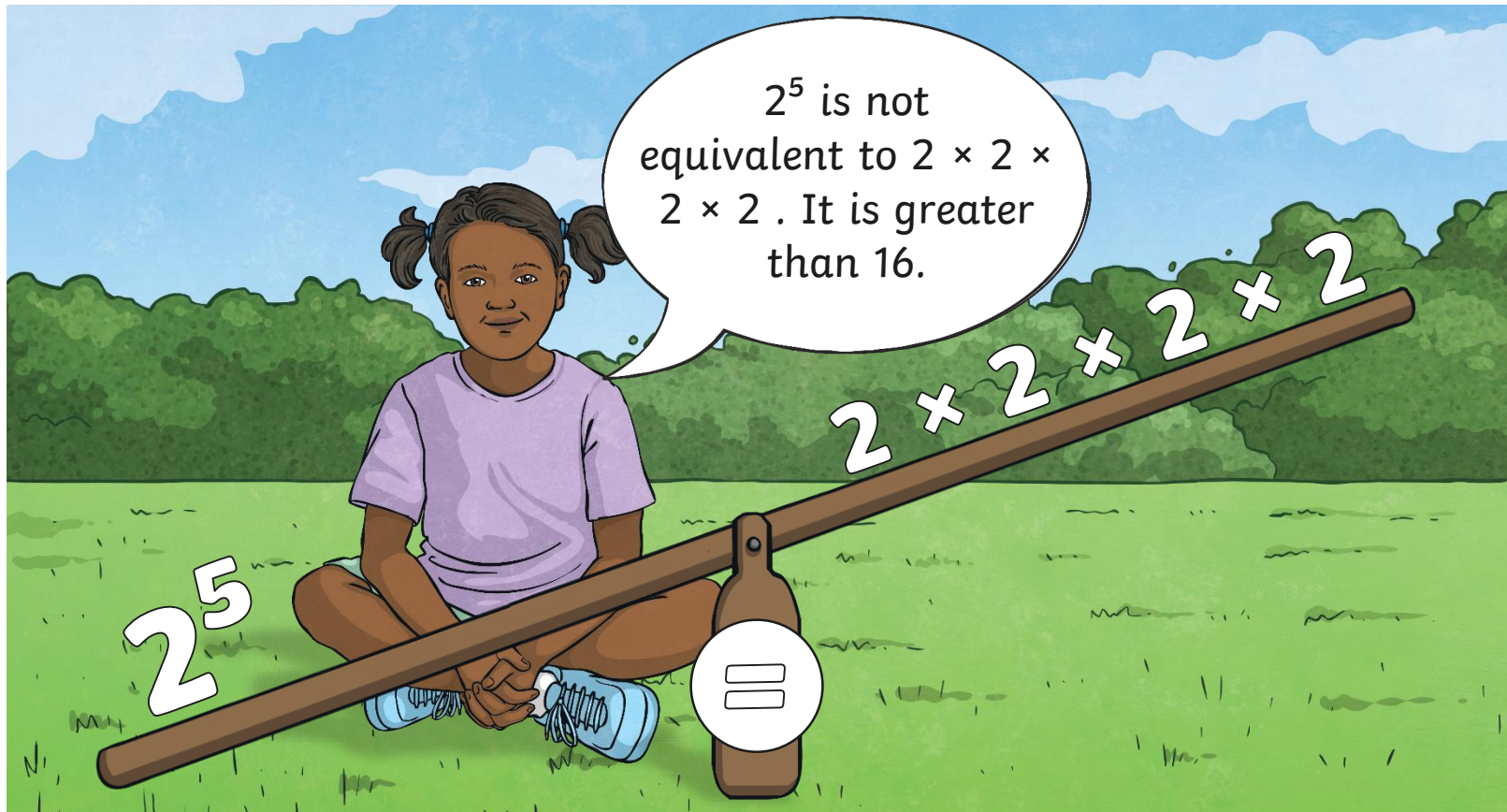
For the see-saw to balance, the calculations must be equivalent.



Balance



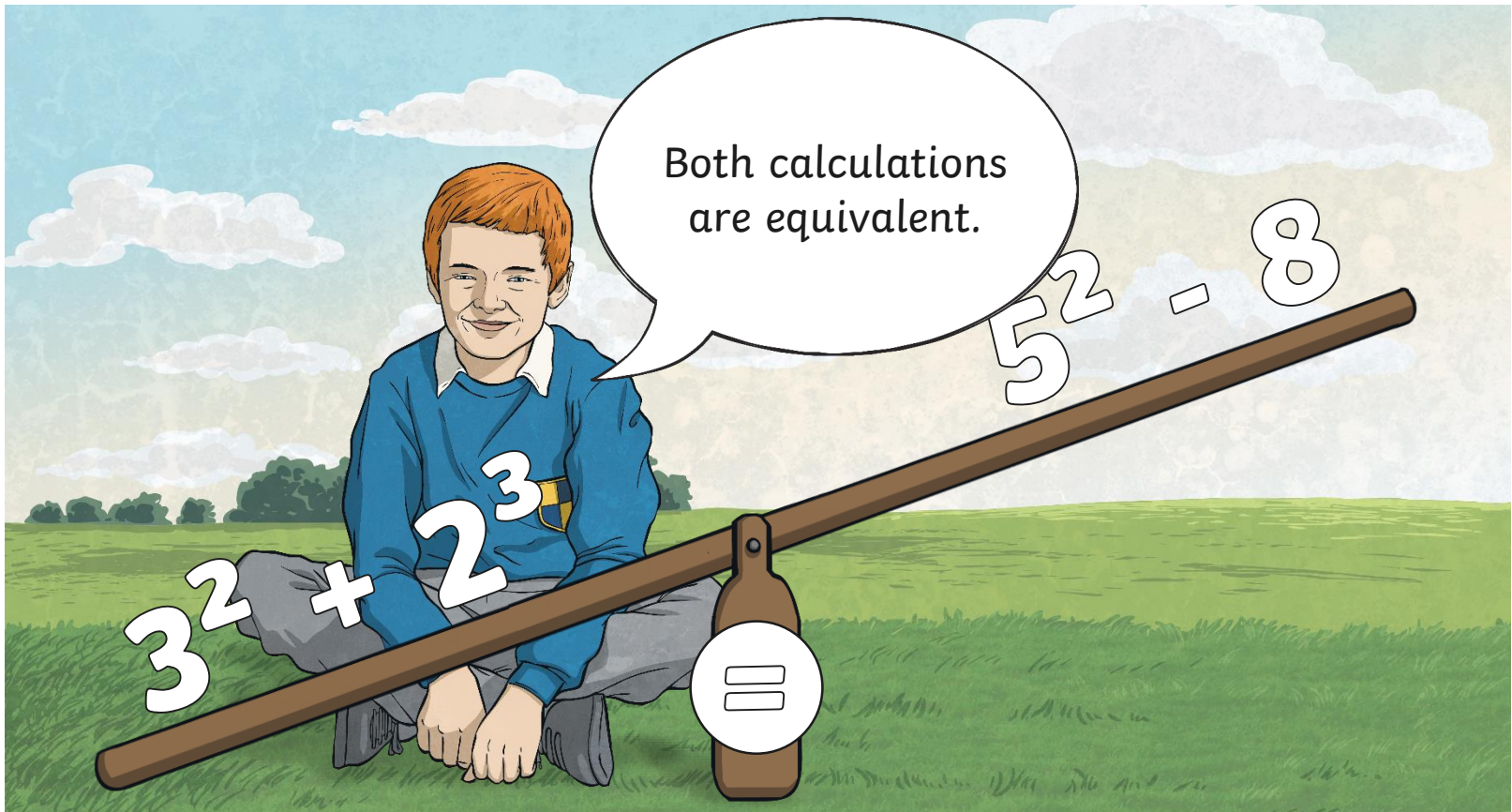
Why doesn't this see-saw balance?



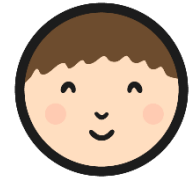
Balance



Will this see-saw balance?



Equivalence



Use your marvellous maths skills to complete these activities:

Equivalence

I can solve missing number problems to make the calculations on each side of the equals sign balance.

1) Find the missing number to make these see-saws balance:

<p>a) $12^2 + 2^2 = 200 - \square$</p> <p>c) $246 \div 6 = \square$</p> <p>e) $\square \div 2 = 5^3 + 10$</p> <p>g) $16^2 = 1000 \div \square$</p>	<p>b) $4^6 = 302 - \square$</p> <p>d) $246 \div 6 = 72 \div \square$</p> <p>f) $2^4 = \square \div 2$</p> <p>h) $246 \div 6 = 10 \div \square$</p>
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2) Draw some of your own see-saws in the space below. Here is the right-hand side to work out a calculation for the left-hand side that will make the see-saw balance. Try to use all four operations and square and cube numbers if you can!

- 425
- 6^4
- 90×3
- $72 - 14$

Equivalence

I can solve missing number problems to make the calculations on each side of the equals sign balance.

1) Find the missing number to make these see-saws balance:

<p>a) $12^2 + 5 = 200 - \square$</p> <p>c) $240 \div 6 = \square - 1$</p> <p>e) $\square \div 5 = 5^2$</p> <p>g) $16^2 = 1000 \div \square$</p>	<p>b) $4^6 = 30 \div \square$</p> <p>d) $246 \div 6 = 53 \div \square$</p> <p>f) $2^4 = \square \div 2$</p> <p>h) $\square \div 3 = 3 \div 3$</p>
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2) Draw some of your own see-saws in the space below. Here is the right-hand side to work out a calculation for the left-hand side that will make the see-saw balance. Try to use all four operations and square and cube numbers if you can!

- 320
- 6^3
- $90 - 9$
- $56 + 150$

Equivalence

I can solve missing number problems to make the calculations on each side of the equals sign balance.

1) Find the missing number to make these see-saws balance:

<p>a) $12 + 5 = 20 - \square$</p> <p>c) $200 \div 4 = \square \div 2$</p> <p>e) $50 \div 5 = \square \div 10$</p> <p>g) $5^3 = 10 \div 3 - \square$</p>	<p>b) $4^6 \div 9 = \square \div 3$</p> <p>d) $246 \div 6 = \square \div 3$</p> <p>f) $2^4 = \square \div 2$</p> <p>h) $24 \div 2^2 = \square \div 5 \div 6$</p>
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2) Draw some of your own see-saws in the space below. Here is the right-hand side. You need to work out a calculation for the left-hand side that will make the see-saw balance.

- 30
- 5^3
- $70 - 8$
- $56 + 24$

Match Up



Can you match up the pairs of calculations which are equivalent and would make a see-saw balance?

6³

$2 + 2^3 - 5$

$8^2 - 4^2 + 5$

$\sqrt{25}$

$9 \times 7 - 10$

216

Could any of the calculations have more than one equivalent calculation?

Aim



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Success Criteria

- I know what the equals sign means.
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