Today's topics for the Teach-Meet style sharing opportunity

1. Solving equations with a variable on both sides
2. Functions

Please have links to your favourite resources for teaching these topics ready to share!

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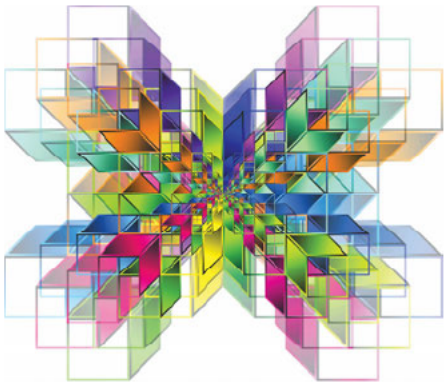
Realising potential

GCSE Maths:
5 ways to check for understanding

Spring 2022



Welcome

Updates

- For up-to-date information and support on the changes for summer 2022, visit the 2021/2022 exam changes area at aqa.org.uk
- To reflect that we're recovering from a pandemic, Ofqual has said that summer 2022 will be a transition year for grade boundaries. This means they will be set 'based on a profile that reflects a midpoint between 2021 and pre-pandemic grading'.
- Grade boundaries are never set until exams have been sat but, overall, we expect results to be higher than they were in 2019, but not as high as in 2020.
- This will help to mitigate the impact of the pandemic on students sitting exams this summer. Visit Ofqual's blog to learn more about how they plan to grade exams in summer 2022.

Avoiding malpractice

In line with JCQ malpractice guidelines, please remind students that they must not:

- share assessment material on social media, regardless of whether that material is genuine or fake
- have a mobile phone in the exam, even if it is switched off
- have any notes in their possession, whether relevant to the exam or not
- have a watch of any kind on them in the exam. The JCQ Instructions for conducting examinations require that a clock must be visible to each candidate in the examination room.

If you're an invigilator in an exam, please ensure that you are up to date with the requirements. Remember that you can't invigilate an exam in the subject that you teach.

If you have any questions, please contact irregularities@aqa.org.uk

Exampro

AQA's Exampro question banks prepare students for their first public exams. Explore thousands of past questions with their associated mark schemes and examiner comments to create compilations suiting your students' needs.

Embed questions in:

- homework, to familiarise students with exam materials
- class teaching, for greater understanding of what's being asked
- differentiated, targeted assessments, to check learning of content and skills
- revision resources, for the best preparation.

AQA's MERiT offers high-quality feedback from mock exams. See the strengths and weaknesses of your class to identify teaching focus; share performance data with SLT; and view student reports to support individual progress.

5 Ways to check for understanding

Today's Session:

1. A reminder of what the evidence suggests is good practice:
   - 5 ways to check for understanding.
     - summarise what has happened so far
     - think aloud
     - agree or disagree?
     - using multiple choice questions for Pose, Pause, Pounce Bounce
     - repeat the instructions

2. An opportunity for colleagues to share resources

The black box

Teaching and learning are interactive

Teachers need to know about:

- Pupils' progress
- Pupils' difficulties with learning
  - individual
  - varied
  - sometimes unpredictable

We get this information from:

- Observation
- Discussion
- Written work

We use this feedback to adapt our teaching to meet the pupils' needs.

"Opportunities for pupils to express their understanding should be designed into any piece of teaching, for this will initiate the interaction whereby formative assessment aids learning." Black P, Wiliam D. Inside the Black Box: Raising Standards through Classroom Assessment. Phi Delta Kappan. 2010;92(1):81-90. doi:10.1177/003172171009200119

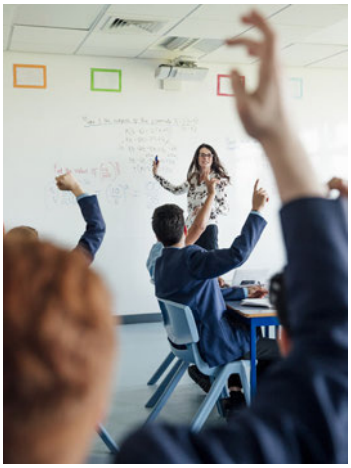
Reminder of the purpose of checking for understanding

Rosenshine 6

Credit © iStocK.com/ graphic-bee

Non examples

- Does that make sense?
- Any questions?
- Do you understand?
- Everyone got that?
- Ok?



Credit: © iStock.com/SolStock

“Summarise what has happened so far”

“Summarise what has happened so far”

Students should be able to:

- Mark points on a diagram given the bearing from another point
- Draw a bearing between points on a map or scale drawing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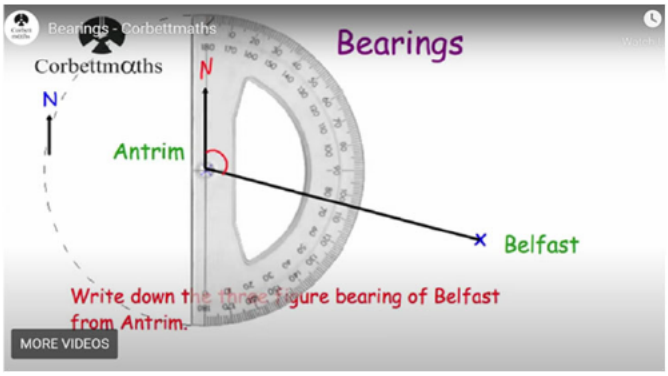
“Summarise what has happened so far”

Q) The bearing of C from A is 130°. The actual distance from A to C is 359 metres. Mark the point C on the diagram.



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Think aloud

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Think aloud

Topic: Functions

Example	Student's attempt
Given $f(x) = 2x$ $g(x) = x + 1$ Find $fg(2)$	Given $f(x) = 2x$ $g(x) = x + 1$ find fg gf

$fg(x) = 2(x+1)$

$fg(2) = 2(2+1)$

$= 2 \times 3 = 6$

Based on an activity from Variation Theory

Think aloud

Other sentence starters to facilitate thinking aloud:

- How did you begin to solve this problem?
- Can you break it down? What would the first part be?
- What do you need to do next?
- Can you share your method for solving…
- Can you reword the question into simpler terms?
- Try to explain what you are doing in your own words.
- Do you see a pattern?
- Have you tried…?
- Did you have a system? Explain it.
- What is the same? What is different?
- How could you help someone without telling them the answer?
- How would you explain today's task to someone who wasn't here today?
- If passing the baton…
- Would anyone like to add to this?

Teach - meet sharing opportunity: Solving equations with a variable on both sides

$23 = 5y - 47$ 1	$6(y + 1) = 48$ 1	$3(y - 2) + 5(y + 1) = 47$ 1	$8y - 1 = 47$?
$y = 6$?	$y = 7$?	$8y = 48$?	$70 = 5y$?
$6y + 6 = 48$?	$6y = 42$?	$14 = y$?	$3y - 6 + 5y + 5 = 47$?

Place the cells in a correct logical order to form a solution to each of the following equations:

- $23 = 5y - 47$
- $6(y + 1) = 48$
- $3(y - 2) + 5(y + 1) = 47$

Based on an activity from Kangaroo Maths

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Teach - meet sharing opportunity: Solving equations with a variable on both sides

Finding the missing number

Rules:

- Both sides of the equals sign must be made the same.
- The same number in each box within a question must be used, eg:

$\square + \square + \square + 10 = \square + 20$

A. $\square + \square + \square + 2 = \square + 8$

B. $\square + \square + 3 = \square + \square + \square + 2$

C. $6 + \square + 12 = \square + \square + 14$

D. $\square + \square + 19 = \square + 29$

Based on an activity from Mathspad

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Agree or disagree?

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Agree or disagree?

For the function $\boldsymbol{f(x) = 5x - 2}$

Evaluate $f(-1)$

$f(-1) = 5(-1) - 2$

$= -5 - 2 = 7$?

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Agree or disagree?

Explain the mistake

Stacey writes:

$f(x) = x^2$ and $g(x) = 3x + 1$

So $fg(x) = 3x^2 + 1$

Stacey is wrong. Correct her mistake.

Bossmaths.com

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Multiple choice Qs with pose, pause, pounce, bounce

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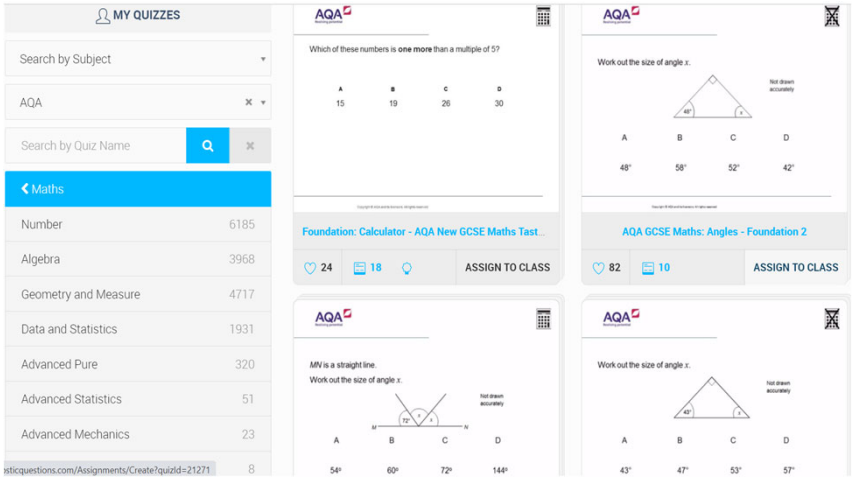
Multiple choice Qs with pose, pause, pounce, bounce



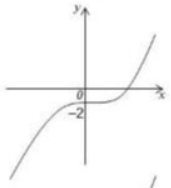
diagnosticquestions.com

Multiple choice Qs with pose, pause, pounce, bounce

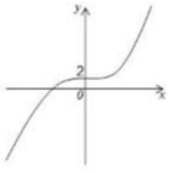
One of these sketch graphs is the curve $y = x^3 + 2$

Which sketch graph is it?

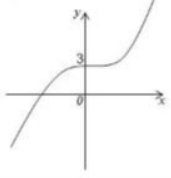
A



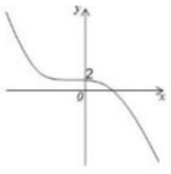
B



C



D



diagnosticquestions.com

Repeat the instructions

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Repeat the instructions

To be able to interpret algebraic expressions as functions with inputs and outputs.

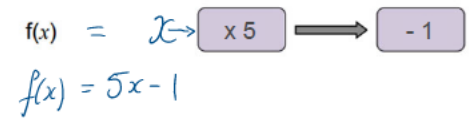
I can…

…apply order of operations (B I DM AS)

…use f(x) notation

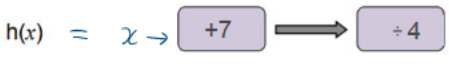
Example 1

Use function notation to represent these function machines, with x as the input:

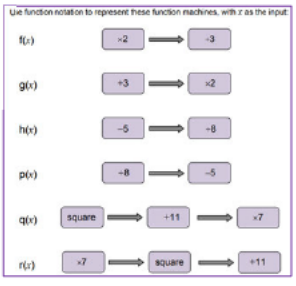


$f(x) = 5x - 1$

Example 2



$h(x) = \frac{x+7}{4}$



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Repeat the instructions

Example 1

Use function notation to represent these function machines, with x as the input:

f(x) = x → [x 5] ⟹ [- 1]

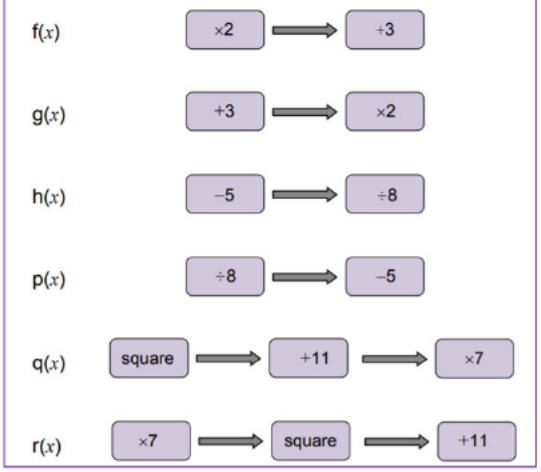
$f(x) = 5x - 1$

Example 2

h(x) = x → [+7] ⟹ [÷ 4]

$h(x) = \frac{x+7}{4}$

Use function notation to represent these function machines, with x as the input:



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Resources

Take advantage of our extra resources in our handy maths resource guide:

GCSE Maths
Handy links resource guide

AQA Realising potential

GCSE Maths - Handy links resource guide >>

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Event materials

The electronic materials from this event will be available to download shortly. If you aren't able to download them at this time, they will be made available to you in the customer portal of our online booking system.

Once we receive notification that you have attended the course, we will send you a certificate of attendance email. When you receive the email, please log in to your account and the materials will be available on the 'my resources' tab on the welcome screen.

Get in touch

Our friendly team will be happy to support you between 8am and 5pm, Monday to Friday.

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Thank you