



The Education & Training Foundation



Abolishing the divide

This guide is one of a series aimed at practitioners from a wide range of providers, including colleges, independent learning providers and those working in the Secure Estate, who support post-16 vocational learners to develop their maths skills up to and including level 2.

For an interesting website

For an interesting document

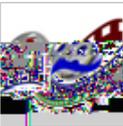
For an interesting film



For an interesting website



For an interesting document



For an interesting film

For an interesting film

Construction and the Built Environment

Health and Social Care

Hospitality and Catering

Hairdressing and Beauty Therapy

Unlocking Maths

For an interesting website

Why should I be concerned about developing my learners' maths skills?

Here are four good reasons:

Developing your learners' maths skills can help them progress in their vocational course

Improving your learners' maths skills increases the employment opportunities open to them.

Maths errors can be costly to any business

Enhancing your professionalism

"Address the mathematics and English needs of learners and work creatively to overcome individual barriers to learning."

Why use a vocational lesson to develop maths skills?

▶ **Contextualisation:** Vocational lessons provide a real-world context for mathematical concepts, making them more relatable and meaningful for students.

▶ **Engagement:** Students are more likely to be engaged and motivated when they see the practical application of what they are learning.

▶ **Problem Solving:** Vocational lessons often involve complex, multi-step problems that require students to apply their mathematical skills in a practical setting.

▶ **Transfer of Learning:** Students learn to transfer their mathematical skills from the classroom to the workplace, enhancing their employability.

▶ **Collaboration:** Vocational lessons often involve group work, fostering teamwork and communication skills alongside mathematical proficiency.

▶ **Industry Awareness:** Students gain insight into various professions and industries, helping them make informed career choices.

▶ **Soft Skills Development:** In addition to hard skills, vocational lessons help develop soft skills such as time management, attention to detail, and customer service.

■ **Example:** A lesson on fractions could be contextualized by discussing the ingredients and proportions used in a recipe for a vocational course.

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Maths which underpins one of these tasks: Cutting

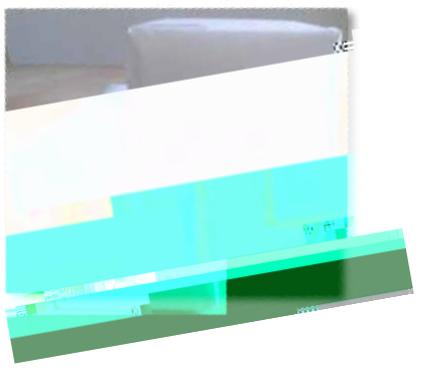
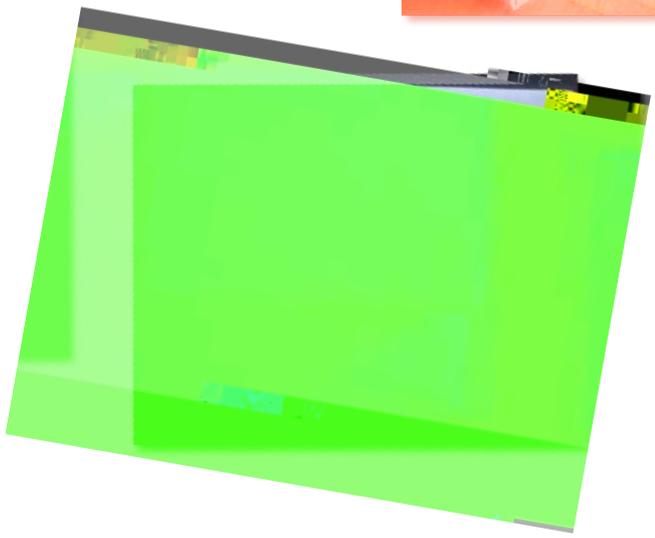
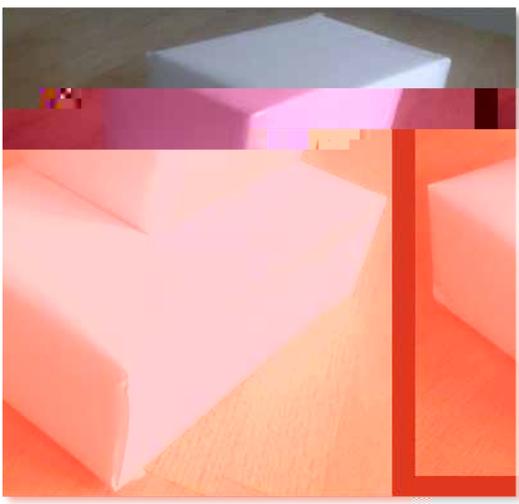
Isometric drawing is a 3D representation of an object. It is a type of pictorial drawing that uses a 30-degree angle to represent the object's depth. This allows the object to be viewed from three different perspectives at once. The object's dimensions are drawn to scale, and the lines are drawn parallel to the axes. This makes it easy to understand the object's shape and size.

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Isometric and Orthographic Projection

How do we find the surface normal for a given point? For a given point, we can find the surface normal by looking at the gradient of the surface at that point. The surface normal is a vector perpendicular to the surface at that point.



Other learning activities related to your vocational area



... the Great Wall of China is a long wall built across the mountains and valleys of northern China to protect against raids by nomads from the north.



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Top Trumps

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Other resources to help learners understand key mathematical ideas

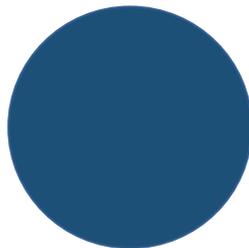


[Mathematical Literacy: A Guide for Teachers](#) provides a range of resources to help learners understand key mathematical ideas.



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The following sections of this Guide describe and respond to some challenges you

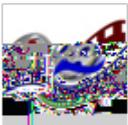


What challenges am I likely to face?

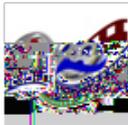
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Engaging learners

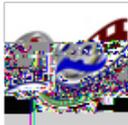
Some learners may struggle to engage with the content of the lesson. This could be due to a lack of interest in the topic, or a lack of understanding of the content. It is important to identify these learners early on and provide them with additional support and resources to help them engage with the content.



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Some learners may need to improve their confidence with basic maths

Some learners may need to improve their confidence with basic maths. This could be due to a lack of practice, or a lack of understanding of the concepts. It is important to provide these learners with additional support and resources to help them improve their confidence with basic maths.

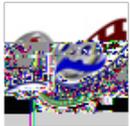


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$\frac{1}{2} \times \frac{3}{4} = \frac{1 \times 3}{2 \times 4} = \frac{3}{8}$

“I feel as though I am good at maths and would like to pass on any help that I can. The guys know who I am and come and see me on the wing.”



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Difficult topics

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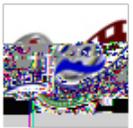
Working in the Secure Estate

- Functional skills are a key part of the curriculum for all learners in the secure estate. Functional skills are a key part of the curriculum for all learners in the secure estate.

“At HMP Wakefield, teachers provide contextualised learning within prison industries on a one-to-one basis to help learners who are in the separation unit and/or those who struggle with functional skills or have additional learning needs. This type of support is proven to be less disruptive to the prison day and effective at engaging those furthest away from learning and skills.”



Functional skills are a key part of the curriculum for all learners in the secure estate.



Meeting the challenges

Working together with maths practitioners

Working together with maths practitioners is a key challenge for all those who are involved in the implementation of the new curriculum. This is because the curriculum is a complex and multi-faceted document that requires a deep understanding of the subject and the ability to work with others to ensure that it is implemented effectively. This document provides a range of resources to support this process, including a range of activities and materials that can be used in the classroom or in a professional development context.

Teaching and learning strategies: developing deep understanding of key mathematical ideas

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Improving Learning in Mathematics Thinking Through Mathematics

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Initial, diagnostic and formative assessment

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References

External references

1. [Maths for Learning Support](#) - A free online resource for learning support staff. It provides a range of resources, including worksheets, activities, and games, to help support learners with maths difficulties. [Maths for Learning Support](#)

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Why should I be concerned about developing my learners' maths skills?

4. "Maths is a fundamental skill that is essential for many aspects of life, including work, shopping, and managing money. It is also a key skill for many careers and professions. Developing your learners' maths skills can help them to become more confident and capable individuals, and to achieve their full potential. Maths is also a key skill for many careers and professions. Developing your learners' maths skills can help them to become more confident and capable individuals, and to achieve their full potential." [Maths for Learning Support](#)

Examples of active learning

Examples of active learning activities that you could use or adapt with learners

Tarsia

Sometimes true, always true, never true

Top Trumps

Other resources to help learners understand key mathematical ideas

What challenges am I likely to face?

Engaging learners

Some learners may need to improve their confidence with basic maths

Difficult topics

The first challenge is to ensure that all children have a good understanding of the basic concepts of mathematics. This is particularly important for children who are struggling with the subject. Teachers should use a variety of resources and activities to engage all children and ensure that they are all making progress.

The second challenge is to ensure that children are able to apply their mathematical skills to real-life situations. This is often the most difficult part of learning mathematics, as children need to be able to transfer their knowledge from the classroom to the real world. Teachers should use a variety of contexts and problems to help children develop this skill.

The third challenge is to ensure that children are able to work together and communicate their mathematical thinking. This is an important part of learning mathematics, as children need to be able to explain their ideas to others and listen to others' ideas. Teachers should encourage children to work in groups and to share their ideas.

Meeting the challenges

Working together with maths practitioners

Working together with maths practitioners is an important part of meeting the challenges of teaching mathematics. This can be done in a number of ways, including:

- Observing other teachers' lessons
- Sharing resources and materials
- Discussing teaching strategies and approaches
- Collaborating on projects and activities

Teaching and learning strategies: embedding and contextualising

Embedding and contextualising are two important teaching and learning strategies. Embedding involves integrating mathematics into other subjects and activities, so that children can see the relevance of mathematics to their learning. Contextualising involves using real-life situations and problems to teach mathematics, so that children can see how mathematics is used in the real world.
