# WHEN WILL I EVER NEED MATHS?

## Well, you might have to use it in Art...

- Use **transformations** and **symmetry** when creating a wallpaper design or printmaking.
- Use a pair of **compasses** to draw a **circle** and to **divide** it into six when creating a mandala.
- **Measure** lengths accurately when dividing up space or building a model.
- Understand **ratio** when mixing colours together to produce a new shade.
- Be able to draw **lines** accurately and use them to create the illusion of perspective.
- Understand **scale** and **enlargement** when creating a copy of a design.
- Use your knowledge of **nets** to create boxes and containers.
- Use **tessellations** to fill a space with a repeating pattern.

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You'll need Maths in Art! (No.1)

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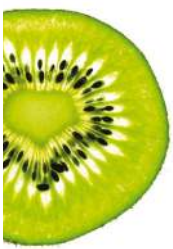
# WHEN WILL I EVER NEED MATHS?

**Well, you might have to use it in Food Technology...**



- Design a **questionnaire** to find out people's views about a new product.
- Calculate the **percentage** of carbohydrate in a product.
- Use your knowledge of **pie charts** to design a meal which follows the advice of the 'eatwell plate'.
- Work with **money** using a **calculator** to compare the prices in three different supermarkets.
- **Substitute** values into a **formula** to work out your body mass index.
- Understand the **ratio** of fat to flour in different pastries.
- **Calculate** the cost per portion for a recipe, **rounding** your answer to a suitable **accuracy**.
- Use **negative numbers** to compare low and high temperature methods of food preservation.
- Use your knowledge of **metric units** to **convert** between grams and kilograms when following a recipe.
- Convert between **metric** and **imperial** units of **weight** and **volume** when using old recipes.

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You'll need Maths in Food Technology! (No.2)

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# WHEN WILL I EVER NEED MATHS?

**Well, you might have to use it in Physical Education...**

- **Add up** quickly and accurately when keeping score in rugby union.
- **Calculate** a person's body fat content using **percentage** body composition.
- Perform the Harvard step test, **calculate** your score using a **formula** and then find your **score** in a table.
- Plan interval training using the **ratio** of time spent working to the recovery period.
- Study recovery **rates** by recording heart rates in beats per minute.
- **Calculate** cardiac output by **multiplying** heart rate and stroke volume.
- **Measure** and record throws and jumps to a required **accuracy**.
- Perform accurate **timekeeping** and then rank the results for a run or sprint.

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You'll need Maths in Physical Education!
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# WHEN WILL I EVER NEED MATHS?

## Well, you might have to use it in Science...

- Explain the stages of the menstrual cycle by referring to a **graph** of oestrogen and progesterone levels.
- Compare boiling points of gases using your knowledge of **negative numbers**.
- Equate the numbers of atoms of each element when you **balance** a **chemical equation**.
- **Estimate** in **kilograms** the amount of household waste that a family produces.
- **Calculate** the number of units of alcohol in a certain **volume** of alcoholic drink with a given **percentage** of alcohol.
- Verify Ohm's law by **plotting a graph** of current against voltage and then **calculating** the **gradient**.
- **Calculate** the efficiency of an energy change and give this as a **percentage**.
- **Measure the angle** of incidence for a ray of light to investigate total internal reflection.
- Use **standard form** when comparing the **masses** of the planets in the solar system.
- **Measure accurately** when recording the **heights** of seedlings.
- **Rearrange formulae** to change the subject and then **substitute** in known values.
- **Convert** between **metric** units of **length** or **volume**.

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You'll need Maths in Science! (No.4)

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# WHEN WILL I EVER NEED MATH?

## Well, you might have to use it in ICT...

- Create a logo using a graphics package by **reflecting** and **rotating** a design.
- Use spreadsheet **formulae** to calculate the **cost** of a school field trip.
- Use your knowledge of **angles** to program a robot turtle to draw a **triangle** or other **polygon**.
- Use live data from a sensor to plot a **graph** showing the temperature of melting ice.
- Format **number** or **currency** data to the correct number of **decimal places**.
- **Convert** between pixels and centimetres when comparing **dimensions** of images.
- Work with **timings** and different **speeds** in frames per second when animating in Flash.
- Produce a spreadsheet to use an **iterative formula** which will calculate the **cube root** of a number.
- **Calculate** actual **dimensions** from a **scale diagram** produced by a computer-aided design package.

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You'll need Maths in ICT! (No.5)

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# WHEN WILL I EVER NEED MATHS?

## Well, you might have to use it in Geography...

- Use climate **graphs** to describe climate change.
- **Calculate** total annual rainfall.
- Calculate the **population density** of a country.
- Use your knowledge of **percentages** to decide if a household is in a state of poverty.
- Draw **pie charts** to compare sources of water for homes in three different areas.
- Use your understanding of **negative numbers** to compare the temperature ranges in five different cities.
- Use a **map scale** and a **ruler** to work out the total length of roads in a given area defined by grid lines.
- Use a **compound bar chart** to answer questions about changing trends in the timber trade.
- Use a **scatter graph** to test a **hypothesis** like *"Districts with a higher percentage of people with higher qualifications have longer life expectancies."*
- Obtain indicators of development by calculating **compound measures** like number of people per doctor.
- Find your way around a map using **grid references** and **compass directions**.

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You'll need Maths in Geography! (No.6)

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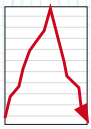

## Well, you might have to use it in Business Studies...

- Choose a **sampling method** and design a **questionnaire** to test consumers' views of a new soft drink.
- Calculate the **percentage change** in number of employees between two given years.
- Work out the amount of **money** received by workers with **hourly rates** who also work overtime.
- Analyse data from a **line graph** showing the changing **percentage** of households with internet access.
- **Substitute** values into a **formula** to calculate **average** cost.
- Know how to **draw** and **analyse** a break-even graph.
- Use financial information to **calculate** gross profit, net profit and the profit margin.
- **Calculate** missing figures in a cash-flow forecast.
- Analyse a **pie chart** showing market share.
- **Calculate** the **interest** paid on a loan with a given **rate of interest**.
- Use **exchange rates** to **convert** between currencies inside and outside the Eurozone.

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You'll need Maths in Business Studies! (No.7)

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