

## **Question Generating**

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## What is question-generating?

.... because stars give out their own light

Why is the sun a star?

Why is the earth not a star?

Why do we get day and night?

How do we know how many stars there are?

What is a star made of?

## Why use this format?

- 1. It is creative and integrative for the learners.
- 2. It encourages responses at different cognitive levels
- Occasionally, it can point to some learning problems Why is the moon a star?)
- 4. In a collaborative group, it can yield valuable discussions, which may include peer-peer learning
- 5. With good partial answers provided, can produce many questions
- 6. With teachers, only a few responses are generated. With young learners, many responses are generated.

## Developing the idea

If the questions are collected, learners may be required to rank questions that require deeper and deeper learning, individually or in groups. This can be a metacognitive activity – thinking about their own thinking.

## Climate change answers

1.	because humans are burning fossil fuel.	Promotes the idea of human involvement in climate change.	Why does human activity increase carbon dioxide in the atmosphere? Why are fossil fuels running out?
1.	because we make less carbon dioxide that way.	Promotes thinking about action	Why does using public transport reduce carbon dioxide emissions? Why does using nuclear reactors affect carbon dioxide content of the atmosphere?
1.	because extreme weather events are dangerous.	Promotes thinking about impact of extreme weather events	Why does it matter that we have warmer and wetter summers?

# Biology

1 because a flower is not usually green	Explores the role of flowers in the attraction of pollinators. Also, points up the need for a plant to have some green parts to make and store energy via photosynthesis.	How does a plant attract insects? Why does a plant need some parts that are green?
1 because it is a plant	Explores the role of classification of part of living things. Also, could be used to look at plant features, and their roles in ecosystems.	Why is there more grass than cows? What advantage is there for some living things to be green?
1 because they are different species	Apart from mating and reproduction, this answer looks at issues of classification.	Why cannot cows successfully mate with sheep? Why must pollen for fertilising an apple come from a related apple tree flower?

## Education for sustainability

1.	because humans are causing environmental change	The impact of humans on the environment is at the centre of this answer.	What makes a remote wilderness so different from a farm environment? Why are some fish becoming extinct or in short supply? Why is the earth warming?
1.	because electricity is not readily available everywhere	As well as mechanical questions, this can also relate to accessibility to electrical supply and social justice.	Why are some human groups so reliant on hand machines and methods of agriculture?

## Chemistry

1.	because burning involves both a fuel and oxygen	This emphasises that both parts are essential for burning.	Why does the gas in a burner pipe not burn? Why does oxygen not burn?
1.	because a solution is a homogenous mixture (the same all through)	This distinguishes between such things as solutions and suspensions.	Why are mixtures of gases also solutions? Why is salt solution not a suspension?
1.	because both solute and solvent particles mingle (intermix) during dissolving	This makes the point that both the solute and the solvent are active in the solution process.	How do the particles interact in the dissolving process?
1.	because some solutes are only partially soluble in the solvent	Few solutes dissolve in any proportions with a solvent.	Why is there a limit to solubility?
1.	because reusing is better than recycling	It takes energy to recycle but not to reuse.	How does it cost energy to make a bag from old discarded pieces of plastic?

## Physics

1 because sound can travel through solids, liquids and gases, but not a vacuum	This answer points to importance of a medium for sound.	Why could we not hear a spacecraft exploding in space?
1 because power = work/time	At first sight, this could be a simple calculation issue. However, even more complex questions can be generated.	Why is power an intrinsic rather than extrinsic property?
because light can travel     through a vacuum but     sound cannot	This focuses on a distinction between sound and light.	Why can we see a spaceship explode in space but not hear it?
1 because it can be reflected	Reflection is itself an interesting property of both light and sound.	Why can a person see themselves in a mirror? How do echoes form?

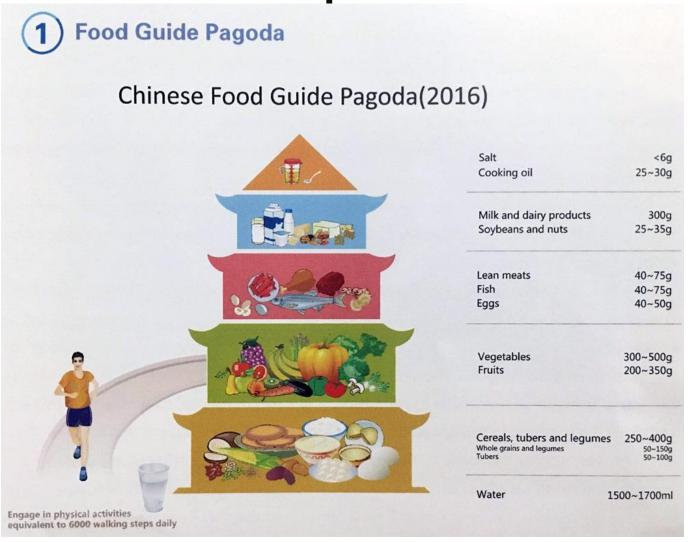
### Earth science

1 because a fossil is evidence of life from prehuman history	In this answer, we could dispel the myth that a fossil has be petrified.	Why is a mammoth footprint a fossil?
1 because rock can be deformed by an extreme pressure and heat	Is rock a perfect solid?	How are mountains pushed upwards?
1 because the earth's surface is continually being regenerated	The idea of the earth's surface being a dynamic system is at the heart of this answer.	Why are there fossils of sea creatures at the top of mountains?

#### Mathematics

1 because it simplifies to 2a + b	This is a reverse form of the usual question that requires a learner to simplify.	What is the simplest form of a + a +b? What is the simplest for of 2(a+b) - b?
1 because it is an integer	This explores the features of an integer?	Why can we count whole numbers?

### Non-text part answer



#### Conclusion

#### Question-generating is:

- 1. Versatile
- 2. Engaging
- 3. Creative
- 4. Metacognitive
- 5. Can adapt to different answer formats
- 6. Socially applicable