Hampshire Advantage +++

The comprehensive Hampshire programme for all Early Career Teachers

Hampshire County Council

hants.gov.uk

Geography Session 5: 1-4pm

Thinking hard in geography

kate.broadribb@hants.gov.uk

Virtual - Teams

Session Focus:

- Explore how we can make our students '**think hard**' and develop their knowledge and understanding of geographical concepts and case studies
- Consider specific strategies to aid **memory** through our subject and provide **supportive challenge**

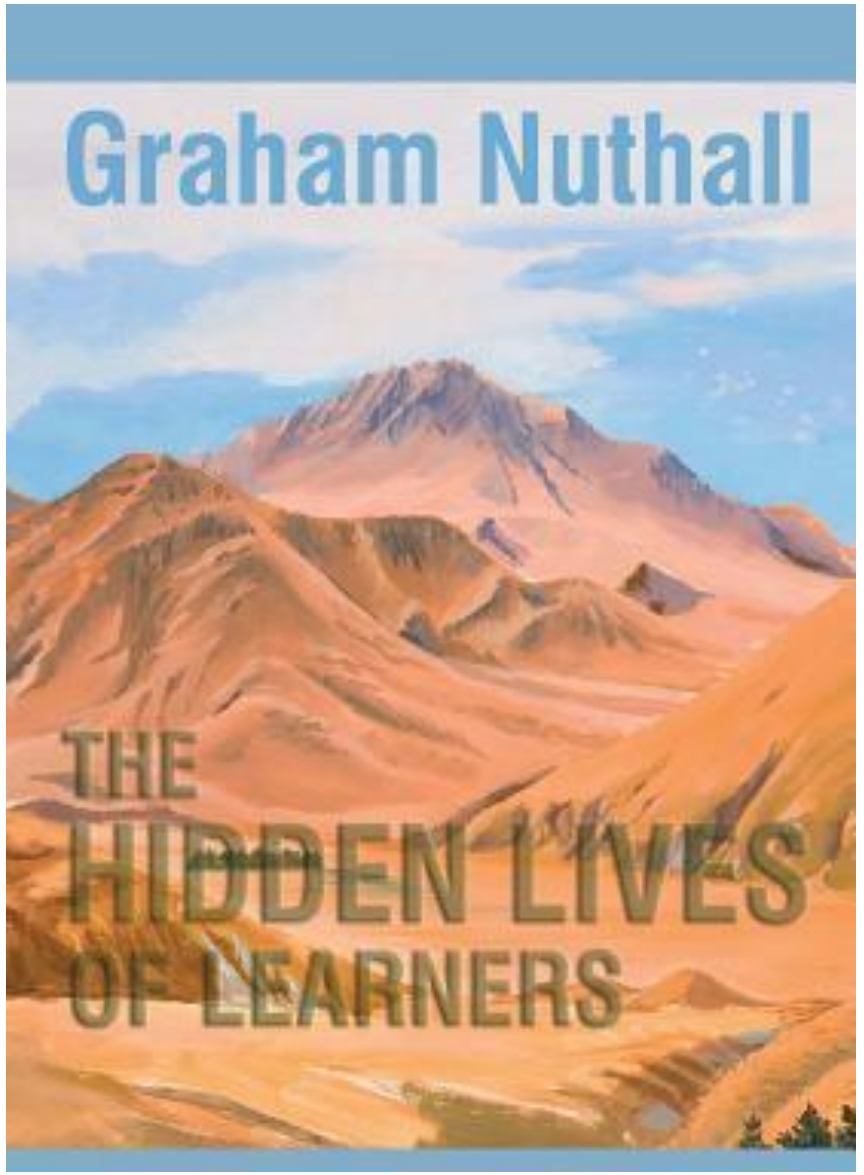
Key Questions:

1. How can we ensure that all students we teach are able to **remember and recall** key content, places and concepts and **retain** understanding?
2. How can we **plan and implement** learning activities that promote high challenge and stretch students thinking?
3. What are the **12 'thinking hard' devices** and how can they be used in geography?

Graham Nuthall, author of 'The Hidden Lives of Learners' found that students already know on average 50% of what they being taught.

The problem is that every student knows a different 50%!

Therefore, having multiple classroom strategies to find out what they know is crucial.



Coasts 20 Question Quiz

1. List the 4 processes of coastal erosion:	2. What is biological weathering?
3. What is mass movement?	4. What mass movement affects the Barton on Sea cliffs? (remember the Elliot movie!)
5. What does the coastal process LSD stand for?	6. Name 2 coastal features formed by deposition
7. Name 2 headlands along the south coast	8. Draw a constructive beach profile:
9. Draw a destructive beach profile:	10. How does longshore drift work?
11. What is a bay?	12. What are gabions?
13. Draw a discordant coastline	14. Which exam paper will you complete questions about coasts? Paper 1, Paper 2 or Paper 3?
15. What is hydraulic action?	16. What is abrasion/corrasion?

Learning Grids

	1	2	3	4	5	6
1	Erosion	Coastal Management	Headland	Hydraulic action	Destructive waves	Attrition
2	Hengistbury Head	Deposition	Spit	Geology of rocks	Corrasion	Swash
3	Long shore drift	Groynes	Fetch	Wave cut platform	Concordant coast	Weathering
4	Backwash	Old Harry Rocks	Gabions	Christchurch Bay	Solution	Rock armour
5	Beach	Tombolo	Transportation	Bar	Discordant coast	Beach replenishment
6	Stack	Constructive waves	Sea wall	Managed retreat	Mudeford Spit	Soft vs hard engineering

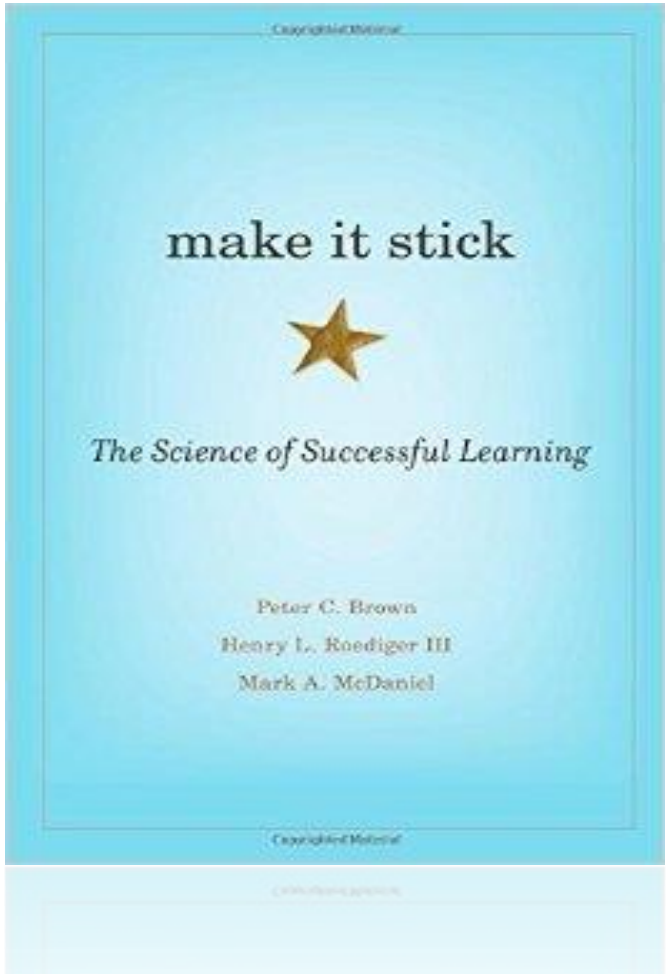
What strategies do you use to check prior knowledge and recall?

Mastery Vs Fluency

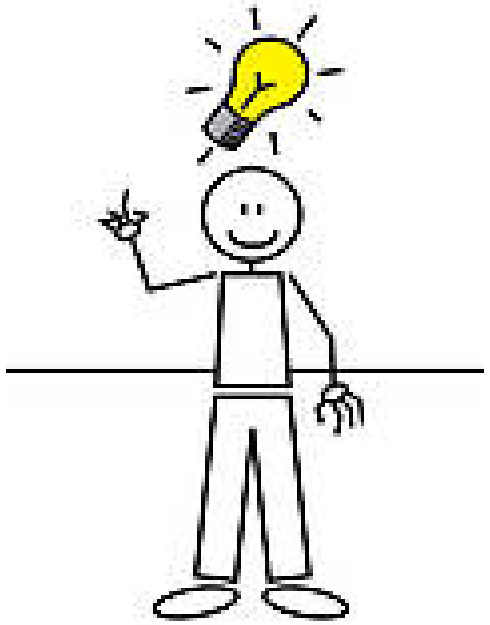
- Many traditional ways of learning focus on **fluency** rather than **mastery**

- E.g. **Re-reading**, **highlighting** and **massed practice** makes us **familiar** with material but we haven't really learnt it

- We need to adopt different strategies to gain mastery instead of fluency



Active Retrieval – Testing



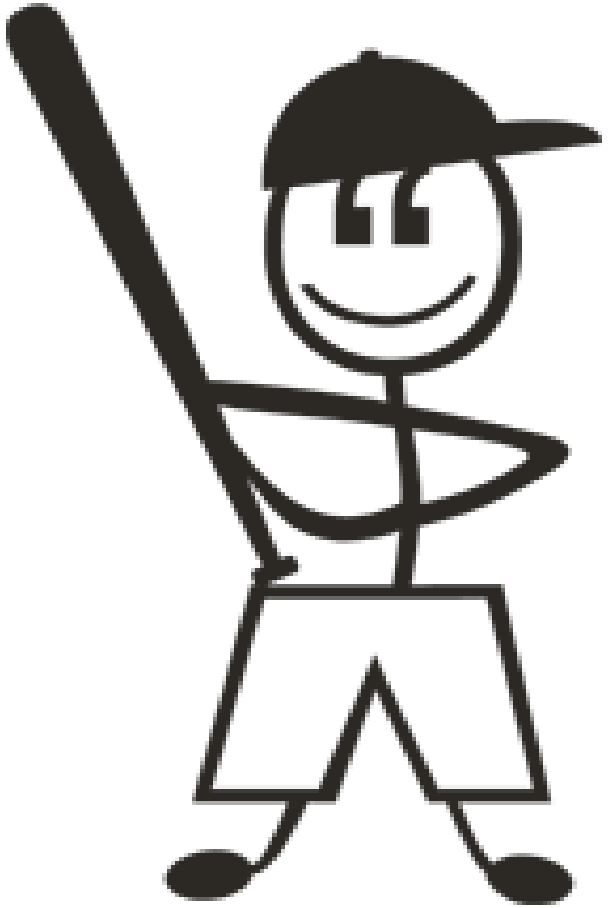
- Being **tested/testing** yourself is one of the best methods of gaining **mastery** of content
- The harder your brain works to remember the content the **stronger the memory** becomes
- Design **quizzes** that test students regularly on **current and past content** to make sure forgetting is interrupted for example 5 for 5 quizzes

Interleaving

- Debunks the **myth of massed practice** – i.e. practicing something over and over for a period of time

- **Interleave your learning** instead, e.g. interleave your study of economic world topic rather than focus on just one problem for a set period even though it might feel sluggish and slower

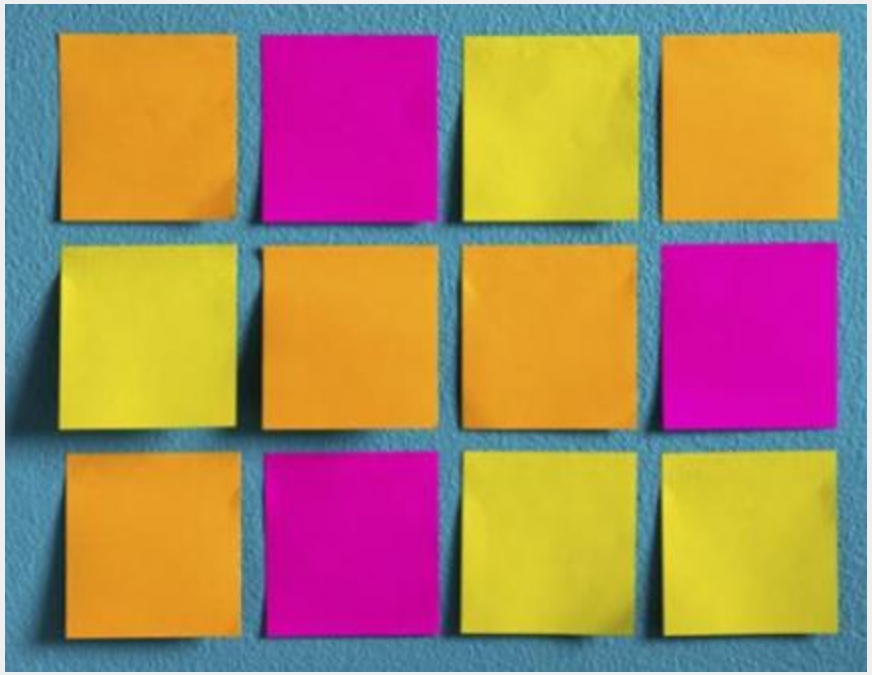
- The research shows that **mastery** and **long term retention** are much better if you interleave practice than if you mass it



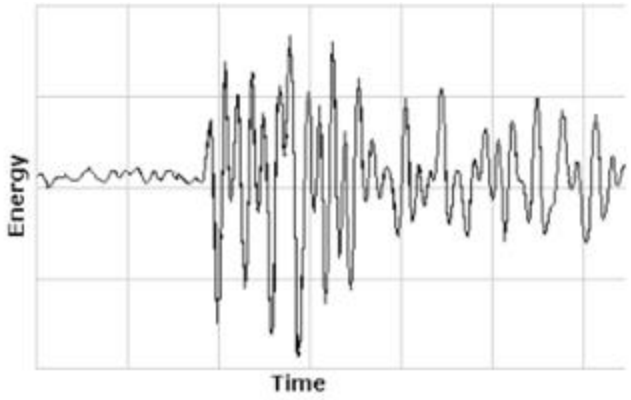
Further reading: Mark Esner ‘Making every geography lesson count’

The link below is to Mark’s blog post on how to make the learning stick in long term memory. Have a read and consider how you could implement his top 5 tips in your teaching:

[Retrieval practice: five new tips to make learning stick | Tes Magazine]



The visual builds a bridge



Knowledge organisers - great for retrieval practice

Paper 2: Section B - Changing Economic World – UK Economy Knowledge Organiser

Due Date: Fri 22nd Jan 2021

Key Term	Definition
North South Divide	The gap of development and wealth.
Local Enterprise Partnership (LEP)	Locally-owned partnerships between local authorities and businesses. Local economic priorities.
Enterprise Zones	An area that has been granted special tax breaks.
Globalisation	The increase of the production of goods and services.
Trade Bloc	An agreement with others to remove barriers to trade.

What is the North South Divide? Use the map below to help explain.
The north south divide is the gap of development and wealth. The north has many more unemployment areas meaning cities like shefield are less developed than cities like hackney this is because Hackney is in the south meaning it has a better chance of developing more quickly.

How can we reduce the gap?

Forigen Investment
Transport Improvements
Northern Partnership
Local Enterprise partnerships.

Your named example of an LEP the Lancashire LEP – add information about it below:
Local businesses encouraging each other to move in to set up business.

What are UK's links with Commonwealth? How does it help us?
The uk is apart of the commonwealth and they account for 72% of the uk's exports and the uk relies on the commonwealth for 73% of our imports. This helps us greatly as we import most of our goods from the commonwealth, otherwise we would struggle greatly.

How does the UK link with the rest of the World?

Trade: the uk trade with over 200 countries helping to bring in goods from all over the world, but also exporting goods to hundreds of countries too. This helps form relationships with other countries and also creates sustainability within trade links.

Transport: Heathrow is the 7th busiest airport in the world. It brings in 219,458 passengers every day. Linking people from all over the world to the uk. Transport also helps develop the economy of the uk but also helps businesses develop more as they bring people in and out of the country every day.

Electronic Communication: in the uk we have phones that can help us communicate with other people in different countries. Another form of this is by computer and email as you can keep in contact with people from all over, this also helps tourism too as people will want to visit each other.

Culture: the uk has many different cultures thriving within our country with so many different religions too. Cultures play a big role in the uk with the rest of the world because we have a wide range of restaurants and cuisines now due to the diversity of cultures. This brings people from all over as they will enjoy these foods too. Meaning that there will be more tourists and therefore the economy will grow too.

Television: the uk can easily make links with the rest of the world with television, this is because adverts and tv shows that may be created in another country can also be shown in the uk meaning that our countries are links across the world. Also we have the news this means that people in the uk get daily updates on what's happening in other countries too.

How is Southampton connected to the rest of the World? Southampton has one of the busiest ports in europe this is because it is home to forley the power station and also southampton docks where the majority of the uk goods are delivered too.

What is the EU? A group of countries that keep peace and free of movement of people and goods.

Exam Question Practice: DO THIS ON SLIDE 2
Suggest how the UK benefits by having close links with the rest of the World.
[6 marks] *Complete on next slide.*

Red pen black pen:

(Disclaimer - This was taught to me years ago by an occupational therapist during a session in my PGCE)

You ask students to look over revision from a topic, say a mind map or revision flash card on coastal landforms. Then on a blank piece of paper in black pen they write down everything they can remember. Once they exhaust their initial working memory ask students to look at their original notes and write down in red anything they forgot and left off. Repeat 2 times and they will have got it all

“Learning happens when people have to think hard”

Robert Coe

“Memory is the residue of thought.”

Daniel Willingham

The ‘Thinking Hard’ strategy from PiXL is designed to make the students think, take them out of their comfort zone and enable the deep learning process to occur.

Knowledge and understanding

- Reduce
- Transform
- Deconstruct
- Derive

Analysis and application

- Prioritise
- Categorise
- Criticise
- Trends and patterns
- Practise

Flexibility of thinking

- Make connections
- Compare
- Extend & Create

Ian Gilbert

“It’s not about doing more; it’s about optimising the strategies you use already.”

The strategy requires no new resources – it simply requires you to change the way you ask students’ to complete tasks

AQA Pre-release example

Option 1

Make notes

Option 2

Highlight important points and/or keywords

Are we asking students to think hard?

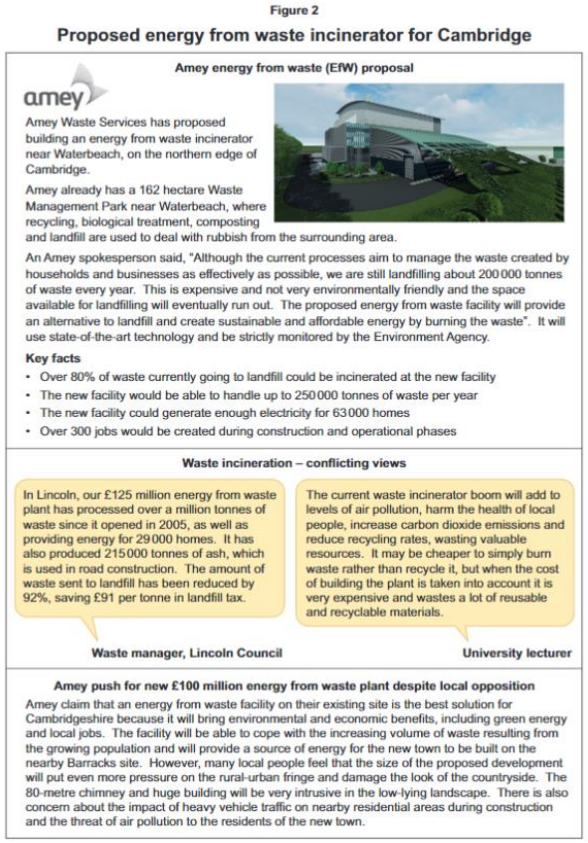


Figure 2

Proposed energy from waste incinerator for Cambridge

Amey energy from waste (EfW) proposal

amey

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Amey already has a 162 hectare Waste Management Park near Waterbeach, where recycling, biological treatment, composting and landfill are used to deal with rubbish from the surrounding area.

An Amey spokesperson said, "Although the current processes aim to manage the waste created by households and businesses as effectively as possible, we are still landfilling about 200 000 tonnes of waste every year. This is expensive and not very environmentally friendly and the space available for landfilling will eventually run out. The proposed energy from waste facility will provide an alternative to landfill and create sustainable and affordable energy by burning the waste". It will use state-of-the-art technology and be strictly monitored by the Environment Agency.

Key facts

- Over 80% of waste currently going to landfill could be incinerated at the new facility
- The new facility would be able to handle up to 250 000 tonnes of waste per year
- The new facility could generate enough electricity for 63 000 homes
- Over 300 jobs would be created during construction and operational phases

Waste incineration – conflicting views

In Lincoln, our £125 million energy from waste plant has processed over a million tonnes of waste since it opened in 2005, as well as providing energy for 29 000 homes. It has also produced 215 000 tonnes of ash, which is used in road construction. The amount of waste sent to landfill has been reduced by 92%, saving £91 per tonne in landfill tax.

Waste manager, Lincoln Council

The current waste incinerator boom will add to levels of air pollution, harm the health of local people, increase carbon dioxide emissions and reduce recycling rates, wasting valuable resources. It may be cheaper to simply burn waste rather than recycle it, but when the cost of building the plant is taken into account it is very expensive and wastes a lot of reusable and recyclable materials.

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Option 3

Comprehension questions

Understanding and knowledge

Reduce

Reduce the paragraph on AMEY WASTE SERVICES to two bullet points. 12 words maximum for each point.

Explain WASTE INCINERATION in 12 words.

Transform

Change the information about CONFLICTING VIEWS into four pictures or images. No words allowed.

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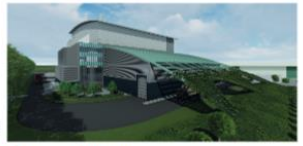

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Understanding and knowledge

Analysis

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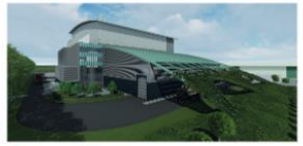

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Criticise Amey's plans to build the incinerator

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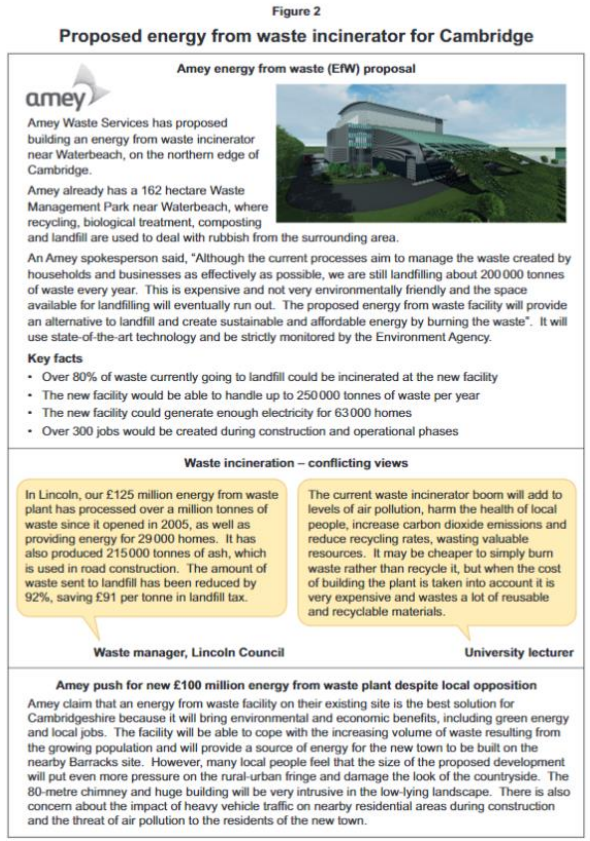

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Understanding and knowledge

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Flexibility of thinking

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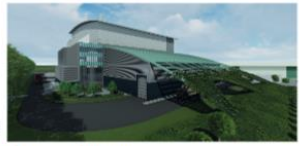

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Extend

Compare the argument for the Cambridge incinerator with the building of our local one in Portsmouth

Write a knowledge style exam question that could be asked by the examiners on this topic.

Reduce
Change this photo into six words

Transform
Change this photo into an annotated sketch

Prioritise
Rank the 3 most significant threats to this area.

Categorise
State the erosional processes that are at work here. Identify the landforms that are present.

Extend
Predict how this coastal area might change over the next 50 years.

Further reading/watching

Thinking fast and thinking slow - Daniel Kahneman https://www.youtube.com/watch?v=CjVQJdIrDJ0&t=3s

Mark Enser: https://www.tes.com/news/retrieval-practice-five-new-tips-make-learning-stick

David Rodger-Goodwins blog on retrieval practice https://mrgoodwin23.wordpress.com/2020/05/20/retrieval-practice-and-the-art-of-schema-building-2/

https://www.learningscientists.org/downloadable-materials