Science lesson plan linking careers in construction to the classroom learning in line with Gatsby Benchmark 4

THE WOW SHOW

Building Your Future

A careers special in association with

GO CONSTRUCT

Watch the Show here: **https://www.youtube.com/channel/UCXDSgY0E_aACHXcSqX14YNg**

RSA Academies

Bloomberg Building, London
Sustainable design

Watch the link here
https://www.youtube.com/watch?v=fDZUE3biUsI

RSA Academies

Prepare possible answers in slide notes

- Discuss what science could be involved in a career in the construction industry

4000 people work in the Bloomberg Building which was designed to reduce its environmental impact

- List ways that people can reduce the amount of energy and resources they use at work
- Challenge: suggest design features of an office building to reduce the energy and resources used

RSA Academies

Agree learning objectives

- We are learning about reducing environmental impact
- You will be able to
  - Suggest and evaluate ways companies can reduce their environmental impact
- Key words
  - Recycle, reuse, environmental impact, life cycle assessment
  - Efficiency, renewable, non-renewable,
- Things to remember

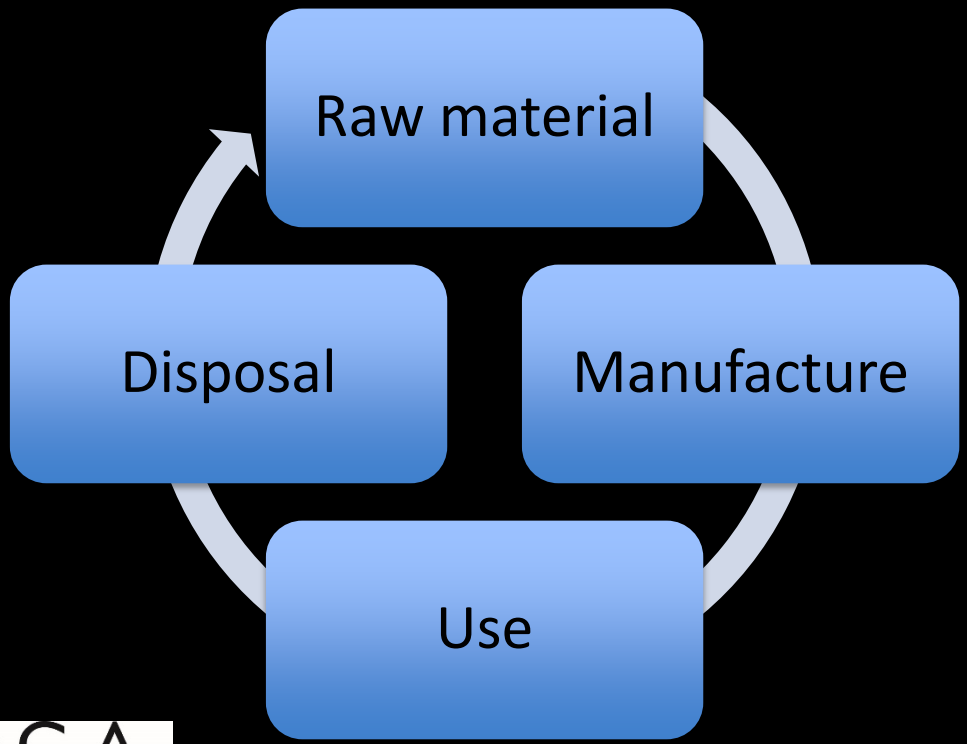
  Resources can be reused, recycled, or used less

  Ways to generate electricity include solar panels, biomass and fossil fuels.
- KASE
  - Attribute: being reflective and autonomous (find out what's possible after leaving school);
  - Skill - communication

RSA Academies

New information chem focus

All products have a life cycle. At each stage, the product affects the environment.



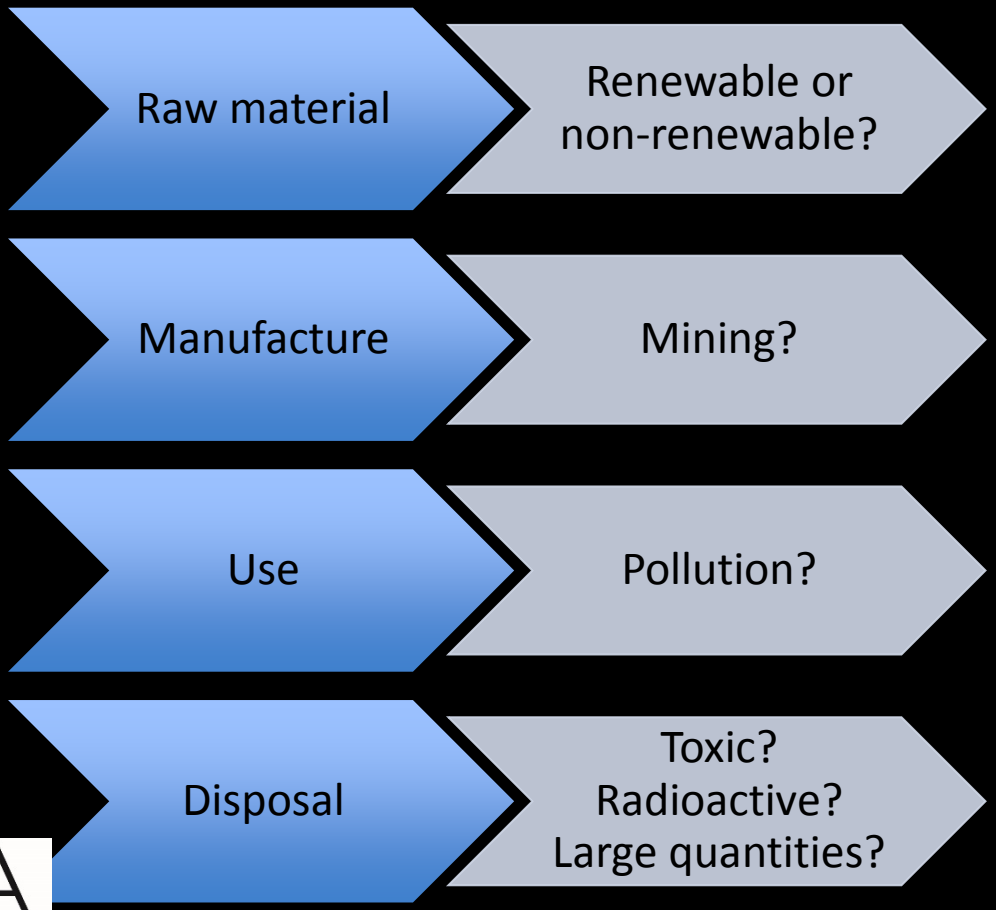
Describe the lifecycle for a bottle of water.

Challenge – which stage of the life cycle has most impact on the environment?

RSA Academies

New information physics focus

Electricity production has a life cycle.



Compare the lifecycle for wind farm and a gas-fired power station

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Construct physics focus

The Bloomberg Building has these features:

- On-site combined heat and power generator
- Photovoltaic cells on the roof
- Natural ventilation system using flaps, and an open centre acting like a chimney
- LED lights
- Detectors to turn off lights and ventilation in empty rooms

Where do these fit in the life-cycle assessment?

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Construct chemistry focus

The Bloomberg Building has these features:

- Built using recycled aggregate in the concrete
- Rain water recycling
- Vacuum flush toilets (that don't use water)
- Zero landfill (waste is recycled, composted, used to generate electricity)

Where do these fit in the life-cycle assessment?

RSA Academies

Apply to demonstrate:

Watch the video

List the ways the Bloomberg building reduces environmental impact

Put these in order of importance and compare with your partner

https://www.bloomberg.com/careers/blog/eco-friendly-features-bloombergs-new-european-headquarters/

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Apply to demonstrate 2 (option 1)

Prepare a survey for your year group to assess their impact on the environment e.g.

1 How do you travel to school?

2 How much plastic do you throw away weekly?

3 Do you leave equipment on when you go out?

Use the answers to your survey to evaluate the best ways your school can reduce its environmental impact

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Apply to demonstrate 2 (option 2)

In groups, audit your school to identify changes to

- Reduce energy use
- Reduce waste
- Recycle or reuse
- Use more environmentally friendly options

Use the audit to write a recommendation for your school council.

Things to consider:

Can changes be done by pupils, by teachers/staff, or are for the whole school

Who will benefit and how? Are there any disadvantages?

How quickly can changes be made and how big is the benefit?

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Apply to demonstrate 2 (option 3)

4,000 people working in one building will have an impact on the environment

Suggest changes that could help to reduce the environmental impact of the office

Things to consider:

Can changes be done by individual workers, or do they affect the whole building?

Who will benefit and how? Are there any disadvantages?

How quickly can changes be made and how big is the benefit?

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Review

Reflection: What can you….

Reuse?

Recycle?

Reduce?

What changes can you make

today?

in a month?

in a year?

RSA Academies

To learn more about careers in the construction sector click here:

https://www.goconstruct.org/

For further information, please see
https://www.rsaacademies.org.uk/projects/building-your-future/

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