

TEACHER NOTES

Science: Chemistry, Physics & Biology

Sustainability in the Environment



Education
Destination



Contextual Summary

All tasks within this resource are designed to appeal to students at key stage 4 working at lower or higher abilities.

Chemistry Activities

This section of the resource relates to the 'Chemical and Allied Industries' part of the Science National Curriculum, focusing on building materials sourced from crude oil and limestone. The task links to using The Model Village to identify different building materials, their uses and possible alternatives to ensure a sustainable environment.

Teaching resources by Education Destination Ltd.

Curriculum relevant materials supporting school trips to the Isle of Wight

Book today with Education Destination and get full access to this and hundreds more quality resources

www.edudest.uk

of Wight.

Biology Activities

This final part of the resource relates to the 'Ecosystems' part of the Science National Curriculum, focusing on sustainable activities. The task links to using The Model Village to identify suitable sites for various sustainable activities.

Task Implementation

This is an on-site resource pack.

The **chemistry**-focused activities require students to study different building materials and identify them as sourced from crude oil or limestone. They will then make decisions about the possible alternatives for building materials sourced from crude oil. Some students will then develop their ideas and consider the issues associated with limestone quarrying. Ideally, teachers will have introduced students to the fractions of crude oil and limestone products before their visit.

The **physics**-focused activities require students to make decisions about the appropriate sites for various renewable energy supplies. Students study The Model Village then complete a 'Planning for a Sustainable Environment' worksheet. Students will relate their knowledge of different renewable energy supplies to the real problem of selecting an appropriate site. Students will then consider the advantages and disadvantages, both locally and globally. Ideally, teachers will have introduced students to the various forms of renewable energy before their visit.

Finally, the **biology**-focused activities require students to study The Model Village and decide upon a suitable site for a list of sustainable activities. They will relate their understanding of sustainability and conservation to the real world. Some students will then develop their ideas and consider the issues associated with developing a sustainable environment. Ideally, teachers will have introduced students to sustainability and conservation before their visit.

SUBJECT

Science (Chemistry, Physics & Biology)

UNIT

Sustainability

OPPORTUNITIES FOR USE

- ✗ Pre-Visit
- ✓ On-Site Activity
- ✗ Post-Visit



CURRICULUM / SYLLABUS

- ✓ National Curriculum 2014
- ✓ All Exam Boards

Applies to Resources numbered:

109201
109202

Ability Levels

There are two variants of this resource, one for lower ability students in key stage 4 and one for higher ability key stage 4 students - the resources can be used as a 'combined' Science resource or by using the individual task pages students can focus on Chemistry, Physics or Biology activities as desired.

The language has been simplified in the lower ability resource, and tasks are less complex.

Teachers could adjust/amend questions as required to suit individual needs, or they could place students of different abilities together in groups for support.

Key skills practised in this unit.

- ▶ Decision making
- ▶ Using models in a planning process.

Relationship to Curriculum

The above skills are required to be taught and practised as per the various exam boards for key stage 4 Science.

Teaching resources by Education Destination Ltd.

Curriculum relevant materials supporting school trips to the Isle of Wight

Book today with Education Destination and get full access to this and hundreds more quality resources

www.edudest.uk

During the visit

Completion of the resource/s linked to this Teacher Note:

Resource ID: **109201** (KS4 low-mid ability) or **109202** (KS4 mid-high ability)

Enrichment Opportunities

- ▶ Opportunities exist for students to gain valuable practice in decision making, planning and communication.
- ▶ Students will be able to extend their knowledge to unfamiliar situations.

Learning Outcomes

Students will:

- ✓ make decisions based on available information
- ✓ relate different building materials to their appropriate uses
- ✓ identify building materials that have been produced from fractional distillation of crude oil and those that are products of limestone
- ✓ relate the use of building materials to the need for sustainability
- ✓ list the advantages and disadvantages of limestone quarrying
- ✓ relate appropriate sites on the Isle of Wight to the advantages and disadvantages of various renewable energy sources
- ✓ relate different sustainable activities to their appropriate site
- ✓ relate the use of various activities to the need to develop a sustainable environment
- ✓ be able to list the advantages and disadvantages of developing a sustainable environment.

