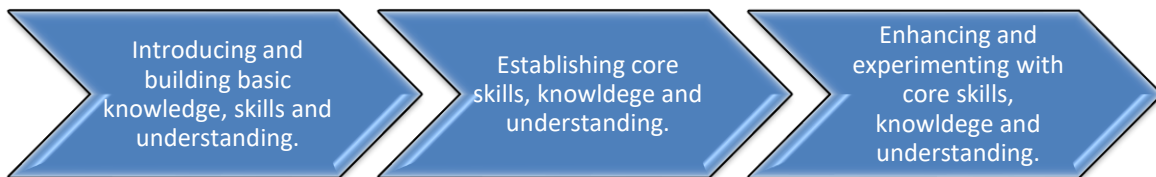


Design and Technology

Key Stage 3

Programme of Study

WIND POWER



Year 8/ 9 – Renewable energy Wind power

Background

- The year 7 programme will have provided students with a foundation in the required knowledge, skills and understanding to engage proactively with the year 8/9 course. The range of materials and basic practical skills will be built upon with more design and make activities in year 8/9. These projects whilst introducing new materials and processes does so by expanding on student's prior existing knowledge gained from year 7. The schemes of work within the course are designed to meet the needs of all students from SEN through to MAGT with a variety of AfL, group and paired work opportunities.

Objectives

- To create a course that builds on the knowledge, skills and understanding about renewable energy and in particular wind power and its industry within the design and technology curriculum .
- To enhance students core knowledge of design and technology through the use of more open design briefs that allow students to fully engage with the design and decision making process., by showing an understanding of the needs of clients and consumers.
- To build students awareness of the whole design processes by incorporating aspects such as smsec & environmental issues and enterprise.

Knowledge, skills and understanding: Workshop

Renewable energy project “Wind power” 6 weeks Maximum Assessment level :8

A workshop based project that is based around a Dragons den type task were students will design and make a portable wind powered battery charging prototype. The project will focus on the need for renewable energy and will initially look at the different types of renewable energy. Students will then be asked to focus on wind power and in particular designing and making a portable unit that is efficient to use and can be taken anywhere to be used as an emergency charger for a battery.

Week 1

- 1) Introduction to renewable energy
- 2) Why we need it
- 3) What types exist and the positives/ negatives associated with each one.

Week 2

- 1) Wind power through the ages.
- 2) Wind power designs –Turbines, what they do and how they work.
- 3) Dragons Den intro.

Week 3

- 1) 1 Design brief, 2 parts. Produce power from wind and what if the direction changes.
- 2) Design and understanding of wind turbines.
- 3) Initial ideas, modelling of ideas, initial testing.
- 4) Resources, timescale and the importance of teamwork.

5) Success criteria – what are they and what the project needs to do to be successful

Week 4 and 5

- 1) Design building and assembling.
- 2) Building of turbines for testing and evaluation.
- 3) Solving of construction issues and working with modelling materials

Week 6

- 1) Presentation to the Dragons
- 2) Evaluation of group work against success criteria.
- 3) Evaluation of product / What is involved in producing power from the wind.
- 4) Career paths.
- 5) Future energy sources.
- 6) Why it is important.

Additional Notes

Schemes of work

Schemes of work and subsequent lesson frameworks are provided for each of the projects above and can be found in the DT server in folders named workshop resources / food resources / textiles resources. Please do not delete or move any items within these folders. It is important that the year 7 workshop schemes of work are taught in the order listed to ensure that appropriate progression of skills can take place.

Resources

Where possible and with time permitting additional supporting resources have been added or will be added to aid the teaching of these lessons. Many of the projects are new and not all resources may be ready when an individual teacher requires them. It is worth noting that it is the individual teacher's responsibility to plan and prepare resources for each lesson they are teaching, and that subject specialists cannot be expected to provide detailed resources at all times. The aim should be to share all resources that we produce with each other. Please therefore save a copy of any resources that you have produced for a lesson in the appropriate food/workshop/textiles file with a suitably recognisable name. This will help to share the load and will ensure that we build a good bank of different resources for our new projects.

SEN / MAGT

The schemes of work have been designed to build year on year students' knowledge, skills and understanding across all material areas of design and technology. The projects are diverse enough to ensure that all students from SEN to MAGT can access the work and be appropriately challenged. It is the teacher's responsibility to ensure that this takes place for each student.

Assessment

Student assessment will continue to be recorded on sims and should be completed approximately each half term. Assessment booklets are provided for the purpose of formative written feedback and this should be completed at least every half term. Please also see the department handbook and assessment policy.

H&S

Please see the department health and safety policy / department risk assessment and direct any questions to the department health and safety coordinator Mr Daniel Pettitt.