

Teachers Notes for Pro-Bot® Amusement Park Mat

Support for preparing for DT Unit 6C 'Fairgrounds'

TTS Code: ITSAMPK

Rationale: Use Pro-Bot to move around the theme park. Consider construction methods and materials to develop model making.

Subjects: ICT and Design Technology

Topic: Theme Park

Objective: To understand and programme sequences to control a floor vehicle to move to a given reference point. To plan, design and make an appropriate ride using available materials.

Ideal Year group: 5/6

Resources: ICT – Pro-Bot, Amusement Park mat.

DT (Materials) – Motors, pulleys, cotton reels, softwood off-cuts, rubber bands, card, recyclable materials, lolly sticks, string, card wheels, wooden wheels, PVA, dowel, masking tape, grey-board, poster paint, paper fasteners, card tubes, plastic tubing, sandpaper, wire, beads, sponge, fabric off-cuts, additional materials as appropriate. (Equipment/tools if available) – Junior Hack Saws, bench hooks, vices, files, hand drills, hole puncher, gun tacker, paper drill, glue gun, pencils, rulers, paper, scissors, paint brushes, additional tools as appropriate.

***Gun tacker and glue gun for adult use only.**

Vocabulary:

ICT:

commands, menu, procedure, repeat, clockwise, anti-clockwise, 90 degrees, quarter of a turn, order, configuration, logo language, sequence.

DT:

planning, scale, measuring accurately, cutting to a line, drilling, filing, safety, triangulation, strength, evaluating, testing,

Activities:

ICT:

Programming Pro-Bot and sending it to a given ride. You could try using Pro-Bot controls on three levels;

1. Use the arrow keys to send Pro-Bot to and from children's favourite rides. These controls move forward and backwards Pro-Bot's own body length, and rotate left or right by 90 degrees
2. Refine planned routes using numerals to set centimetres of movement forward or backward and degrees of turn
3. Use repeat procedures to travel around the Amusement Park and/or incorporate physical obstacles which rely on children using the touch sensor to avoid hazards such as fences which the teacher can incorporate into the activity. Extending Pro-Bot's use to incorporate sensors will extend children's study to ICT unit 6C 'Control and monitoring. What happens when...?'

DT:

We suggest that this mat can offer the ideal opportunity to introduce children to the concepts encountered in unit 6C Design Technology Scheme of Work. These might include some of the following:

- Drawing, labelling and developing ideas for theme park rides.
- Model making using available materials, assisted with appropriate demonstrations.
- Models to include rides, kiosks, cafeterias, entrance signs, toilet facilities, shops, seating areas etc.

This could provide an opportunity to discuss;

- The different types of frameworks that have been used on different rides: construction methods, joins – whether they are temporary or permanent
- The different types of materials used and how you might translate that ride into your own model using appropriate materials and joining techniques
- Make sure children consider all components such as cotton reels, pulleys, etc.
- Discuss how children will be developing their existing experience of model making from previous units of study

Differentiation:**ICT:**

More able children could be encouraged to stop and start at more than one theme park ride. Some may be able to return Pro-Bot back to its starting position. Can they make it return coming backwards as well as forwards?

DT:

More able children could be encouraged to design models with movement, introduce gearing, rotation and linear motion. Will the rides be safe?

With all models, proportion of size and scale will be the critical factor in the success of this unit of work, especially when you bring all the models together to view them as one whole theme park. Staff discretion will be required to ensure a variety of different rides/activities to assist in the effect of the final display.