

THIRD AND FOURTH CLASSES – SCIENCE AND THE ENVIRONMENT

Teacher Guidelines:

- Pages 130 - 132

Linkages:

- Living things: Plants and animals
- Environmental awareness
- Materials: properties and characteristics

Integration:

- Language development – English and Gaeilge
- Visual Arts
- Mathematics
- History
- Geography

THIRD AND FOURTH CLASSES – SCIENCE AND THE ENVIRONMENT

Content Objective:

- **BEGIN TO EXPLORE AND APPRECIATE THE APPLICATION OF SCIENCE AND TECHNOLOGY IN FAMILIAR CONTEXTS.**

at home: cooking, heating, vacuum cleaners, refrigerators, washing machines, toasters

at school: design of computer desks, chairs, pens, calculators

in shops: design of trolleys, use of conveyor belts in counters, ways of preserving foods, packaging foods

in designing and making activities

Some suggested activities:

- Investigate carving and toasting which offer many opportunities to consider the contribution of science and technology, including: electric kettle, electric carving knife, toaster, non-stick pans, dishwasher, telephones.
- Explore hobbies/pastimes e.g. angling, computer games, TV/video and DVD/hi-fi systems.
- Discuss/compare with older people some of the items seen and used on a daily basis and how they have changed, e.g. blackboard, chalk/whiteboard, marker/overhead projector; central heating/radiators/electric or gas fire/open fire; blinds/curtains/shutters/bare windows; workbooks/workcards, homemade or photocopied; copybooks/loose leaf binder/slate and chalk; calculator
- Discuss shopping: Door-to-door delivery of milk by farmer/bottled milk/modern milk cartons; corner shop *vis a vis* supermarket/self-service; baskets/trolleys/trolleys with coin deposit; fresh meat butchering/pre-packaged meat; meat slicers; tailoring/off the peg clothing/mass production of clothing; floor cleaning/mopping/electric cleaners and polishers; bread packaging/slicing. Cardboard boxes/plastic bags/personal shopping bag or basket/paper bags might be discussed and compared (with obvious links with Materials and Waste Management).

Some suggested investigations:

- Consider how classrooms of the future will change

Some suggested designing and making:

- A future invention

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Content Objective:

- **IDENTIFY SOME WAYS IN WHICH SCIENCE AND TECHNOLOGY CONTRIBUTE POSITIVELY TO SOCIETY**

Transport, buildings, bridges, roads, information and communication technologies, insulation of houses, tools and appliances, toys, farming, medicine

Some suggested activities:

- Explore transport: wheelbarrow, bus, JCB, forklift, crane, flight including Concorde, helicopter etc. trains, underground trains, trams, cars, bicycles, motorcycles, ferries, escalator, conveyor belt, lift. Links with health, exercise, safety, war?
- Explore buildings: Size, height, materials used; heating/insulation; prefabricated sections; speed of building; high-rise accommodation; interiors/lighting/use of space/furnishings; how the work of tradespeople has changed; concrete mixed by hand/mixer/readymix; draught proofing, insulation, solar power, art pieces used to enhance visual environment internally and externally;
- Explore bridges: progression through history; design types; materials used; maintenance; viaducts and aqueducts; welding; draw bridge/modern bridge lifts; canal locks/purpose and design;
- Explore roads through the ages: design, surfaces, road building/maintenance/resurfacing; motorways, ring roads; tolls; links with road safety; road lining; traffic management, traffic lights, cats' eyes; level crossings; pedestrian crossing/Belisha beacon/modern version; links with re-use of glass in tarmac.
- Explore tools and appliances: The possibilities here are very wide due to the variety of items at home, in school, on farms, in sport/pastimes, in shops, factories, workshops etc. Cutlery, can openers, corkscrew, nutcracker, pressure cooker, whisk/manual "cream whipper"/electric whisk, juicers, blenders and processors, coffee maker/percolator; teapot, saucepans, frying pans, electric blanket, radio, clocks; shoemaker, hair dryer, curling tongs, tooth brush, drill, sander, spray painter, cameras etc.; ploughing, seeding, weeding/spraying, fertilizer, harvesting, storage of crops;
- Explore medicine: The work of a dentist or surgeon might be traced over

time. Dressings/sutures; sterilisation of instruments, vaccination, x-rays, implants, transplants, keyhole surgery, plastic surgery, mass production of medicines, orthodontics, prostheses etc. all at a level to suit the pupils' stage of development, might be included. Mass production of medicines, antibiotics, tablets etc. use of machinery, forklifts, weighing apparatus, calibration, sterile conditions etc.

- Shopping, farming, games, hobbies, trades, nutrition, art and crafts, manufacture and social life generally will yield many more possibilities for exploring, discussing, comparing and appreciating the contribution of science to our lives.

THIRD AND FOURTH CLASSES – SCIENCE AND THE ENVIRONMENT

Content Objective:

- **RECOGNISE AND INVESTIGATE HUMAN ACTIVITIES WHICH HAVE POSITIVE OR ADVERSE EFFECTS ON LOCAL OR WIDER ENVIRONMENTS**

enhance the built environment

protect flora and fauna, e.g. by creating and maintaining a school garden

produce biodegradable and non-biodegradable waste

affect the quality of air, water and soil

Some suggested activities:

- Explore street furnishings, graffiti, vandalism, street cleaning, shop fronts, noise pollution, litter, waste, packaging, Tidy Towns Competition, street art/drama/parades, annual cleanups, oilspills, landfills, turf harvesting, over fishing, cattle farming (methane production), planning controls, An Taisce, closed seasons for fishing and shooting, control of pets.
- Create a wildlife garden at school including habitats for minibeasts.
- Sort waste at home and school into re-usable, recyclable, compostable and items for landfill.
- Develop a compostor; consider worm composting.
- Research waste management in your county; what companies are in the locality and what items do they gather?

Some suggested investigations:

- Toasting bread by various means might be investigated.
- Carving meat
- How we keep food cool or hot
- Conduct litter or waste survey
- Survey of recyclables at home and school
- Use timer to measure traffic light cycles
- Clocks: making an accurate pendulum to time one minute: investigate length of string and weights and angle of swing
- Whipping cream by various means
- Crack nuts in various ways
- Visit to building site to observe (at a safe distance) machines at work: discussion of how machines reduce time and persons required.

Some suggested designing and making:

- Bird boxes
- Water filter

