

ACT Science Curriculum Framework for Strike a Chord

Early years of schooling (Preschool to Year 1)

Energy and Change

Students are aware of energy transfers and changes around them.

They notice energy transfer such as heat on different materials (skin, footpath, metal slippery dip, grass, sand).

Sources of energy in everyday life begin to be identified. The students locate the sources of energy in a variety of devices (batteries in a torch, doll or toy car; the winder in a spring toy).

Life and Living

Observable features of the students themselves and of other living things are identified. They know external parts of the human body (head, eyes, skin and nails).

Lower primary (Year 1 to Year 4)

Energy and Change

Students explore energy transfers and changes that take place around them. They begin to understand how energy causes change, and its part in everyday life. They investigate sound energy, controlling pitch and loudness and composing and playing their own music. They make musical instruments (xylophones, milk-bottle guitars, garden-hose Pan pipes, drinking-straw clarinets, variety of drums and cymbals).

Life and Living

Through observation and through books, films and pictures, students discover the variety of living things, from small to massive. They learn the names of living things and their parts. They sort and label living things.

Upper primary (Year 4 to Year 7)

Energy and Change

Students explore energy transfers and changes that take place around them. They begin to understand how energy causes change, and its part in everyday life. They investigate sound energy, controlling pitch and loudness and composing and playing their own music. They make musical instruments (xylophones, milk-bottle guitars, garden-hose Pan pipes, drinking-straw clarinets, variety of drums and cymbals).

Working Scientifically

Students find out about simple everyday phenomena and problems that are relevant to them.

They follow up their findings using oral and written skills, by publishing their views, giving talks at assemblies and having dealings with people outside the school.

In clarifying their ideas, students formulate questions that increase their understanding and ability to express views about how things work. They pose problems they would like to solve in their immediate environment, follow up hunches, make guesses and generate new ideas and alternatives.

Students come to grips with the underlying idea that energy transfer and conservation cause and explain change.

Students analyse and identify energy sources, energy receivers and chains of energy transfer. They consider transfer mechanisms.

They may label forms of energy (kinetic, thermal, chemical, potential) and classify mechanisms of energy transfer such as collision, heating, people working, electric current, light, sound and waves.

Much of the students' learning about energy is in the context of technology and problem-solving. They may design ways to light dark corners, improve the acoustics of the school hall or reduce the costs of waste disposal.

Life and Living

Students initially examine the external and internal parts of plants and animals to find out what these parts do. These structures are described and represented in pictures, photographs, drawings and descriptions.

High school (Year 7 to Year 10)

Energy and Change

In the high school band, students move towards a quantitative use of the ideas of energy and change developed in the upper primary band. In doing so, they apply and come to understand principles of energy conservation and work, and develop mathematical expressions for some common energy forms.

Students are introduced to force through the concept of working as a way to transfer energy, so the first forces they consider are pushes and pulls, gravity, magnetism, static electricity, and springs. The third path looks more closely at waves as a means of transferring energy, with a particular focus on electromagnetic waves and their use in communication.