WeDo2.0

Real World Problem Solving
8 guided projects and 8 open-ended projects across life, physical, and Earth and space sciences as well as engineering.

Science and Technology

Working Scientifically
- **Investigates questions and predictions by collecting and recording data, sharing and reflecting on their experiences and comparing what they and others know**
- **Question** and **predict**
- **Plan** investigations
- **Conduct** investigations
- **Process** and **analyse** data and information
- **Communicate**

Working Technologically
- **Uses a structured design process, everyday tools, materials, equipment and techniques to produce solutions that respond to identified needs and wants**
- **Explore** and **define** a task
- **Generate** and **develop** ideas
- **Produce** solutions
- **Evaluate**

Guided Projects

Pulling
What makes objects move?
- explore what forces are and how they can make objects move.
- create and program a robot to investigate the effects of balanced and unbalanced forces on the motion of an object.
- document and present your findings about forces.

Speed
How can a car go faster?
- explore race car features.
- create and program a race car to investigate what factors would make it go faster.
- document and present ways to make your car go the fastest.

Robust structures
What other factors make structures earthquake-resistant?
- explore the origin and nature of earthquakes.
- create and program a device that will allow you to test building designs.
- document evidence and present your findings about what structure design(s) are best for withstanding earthquakes.

Frog's Metamorphosis
How do frogs morph during their lives?
- explore what you know about the stages in the life cycle of a frog, from birth to adult.
- create and program a model of a young frog and then of an adult frog.
- document the changing characteristics of your model throughout different stages of a frog's life.

Plants and Pollinators
How do some organisms contribute to the life cycle of plants?
- explore how different organisms take an active role in plant reproduction.
- create and program a model of a bee and flower to mimic the relationship between the pollinator and the plant.
- Present and document the different models you have created of plants and their pollinators.

Prevent Flooding
How can we reduce the impact of water erosion?
- explore various ways that precipitation can change over seasons and how water can cause damage if it is not controlled.
- create and program a floodgate to control the water level of a river.
- present and document multiple solutions designed to prevent water from changing the shape of the land.

Drop and Rescue
How can we organise a safety mission after a weather-related hazard?
- explore different weather-related hazards that can influence the survival of a population in your region.
- create and program a device to relocate people and animals in a safe and easy-to-use, and respectful way or efficiently drop materials into an area.
- present and document your solution and explain why your solution meets the criteria.

Sort to Recycle
How can you improve recycling methods to reduce waste?
- explore how better sorting methods for recycling can aid in cutting back the amount of waste that is discarded.
- create and program a device that will sort recyclables according to their size and shape.
- present and document the solution you have developed.

Physical World

ST1
ST1-6PW **describes some sources of light and sound that they sense in their daily lives.**
ST1-7PW **describes effects of pushes and pulls on objects they encounter.**

ST2
ST2-6PW **identifies ways heat is produced and that heat moves from one object to another.**
ST2-7PW **describes everyday interactions between objects that result from contact and non-contact forces.**

Earth and Space

ST1
ST1-8ES **describes some observable changes that occur in the sky and landscape**
ST1-9ES **identifies ways that people use science in their daily lives to care for the environment and the Earth's resources**

ST2
ST2-8ES **describes some observable changes over time on the Earth's surface that result from natural processes and human activity**
ST2-9ES **describes how relationships between the sun and the Earth cause regular changes**

Living World

ST1
ST1-10LW **describes external features, changes in and growth of living things**
ST1-11LW **describes ways that different places in the environment provide for the needs of living things**

ST2
ST2-10LW **describes that living things have life cycles, can be distinguished from non-living things and grouped, based on their observable features**
ST2-11LW **describes ways that science knowledge helps people understand the effect of their actions on the environment and on the survival of living things**

Material World

ST1
ST1-12MW **identifies ways that everyday materials can be physically changed and combined for a particular purpose**
ST1-13MW **relates the properties of common materials to their use for particular purposes**

ST2
ST2-12MW **identifies that adding or removing heat causes a change of state between solids and liquids**
ST2-13MW **identifies the physical properties of natural and a materials, and how these properties influence their use**

Built Environments

ST1
ST1-14BE **describes a range of places and spaces in the local environment and how their purposes influence their design**

ST2
ST2-14BE **describes how people interact within built environments and a the factors considered in their design and construction**

Information

ST1
ST1-15I **describes a range of familiar information sources and technologies and how their purposes influence their design**

ST2
ST2-15I **describes ways that information solutions are designed and produced, and factors to consider when people use and interact with information sources and technologies**

Products

ST1
ST1-16P **describes a range of manufactured products in the local environment and how their different purposes influence their design**

ST2
ST2-16P **describes how products are designed and produced, and the ways people use them**

Open Projects

Predator and Prey
- explore the different strategies animals use to catch their prey or to escape from their predators.
- create and program a predator or prey in order to explore the relationship between them.
- present and document your animal model, explaining the relationship between two species and how they are adapted to survive.

Animal Expression
- explore different ways that animals communicate, including the unique methods of animals and insects that light up in the dark.
- create and program an animal or insect to illustrate how it socially interacts with others of its species.
- present and document your model, explaining how the animal communicates and how the helps the animal.

Extreme Habitats
- explore different environments around the globe and across time, and describe what they might tell us about the lifestyle and success of a species.
- create and program an animal or reptile that could have lived in a particular habitat.
- present and document your animal and its environment, explaining how your animal or reptile developed to survive.

Space Exploration
- explore actual missions of space rovers and imagine future possibilities.
- create and program a space rover to achieve a specific task, such as: move in and out of a crater, collect a rock sample, drill a hole in the ground, etc.
- present and document your prototype and what you could possibly discover by achieving these missions.

Hazard Alarm
- explore different weather-related hazards that everyone needs to be aware of, like tsunamis, tornados, and hurricanes, and the warning systems in place to help protect you.
- create and program a device that could warn people to take action because dangerous weather is coming.
- present and document your solution and explain how it helps reduce the impact on the population.

Cleaning the Oceans
- explore why is it important to take care of the oceans and keep them clean of plastic debris.
- create and program a device that can help physically collect plastics of certain types and sizes from the ocean.
- present and document your device, and explain what your solution has been designed to collect and how it does that.

Wildlife Crossing
- explore the effect of road construction on animals and plants and imagine possibilities to reduce its impact.
- create and program a device to allow animals to cross hazardous areas.
- present and document your solution, and explain how the crossing has been designed with a particular animal in mind.

Moving Materials
- explore different ways material is transported and assembled.
- create and program a device that will help you carry and/or assemble differently sized objects, considering safety, efficiency, and storage.
- present and document your device and explain how it is designed to be safe and efficient.

Compiled by Jemma White

All information taken from NSW K-10 Syllabus and WeDo2.0 iPad Application.