### Links with Digital Technologies curriculum areas

#### Strand: Digital Technologies Processes and Production Skills

**Content description**: Implement digital solutions as simple visual programs involving branching, iteration (repetition), and user input ([ACTDIP020](http://www.australiancurriculum.edu.au/technologies/digital-technologies/curriculum/f-10?layout=1#cdcode=ACTDIP020&level=5-6)).
**Explanation**: By understanding the role of a user within a digital system – and how the decisions that users make are responded to through an algorithm – students are able to manipulate, alter and modify algorithms.

An interactive system is based around the idea that a user inputs data to make selections and then the algorithm takes into account user responses. In an interactive system, design is important, and should take into account navigation, how the user uses the system, responses, audience and instructions.

‘If’ and ‘then’ statements can be used to show how a user might interact with a system. When creating solutions, students define problems clearly by identifying appropriate data and requirements. When designing, they consider how users will interact with the solutions, and they check and validate their designs to increase the likelihood of creating working solutions.

Throughout this learning sequence, students create algorithms using a series of questions. The answers result in a score that directly correlates to feedback for the user. Students need to explore audience in order to make decisions about the structure of the questions and possible answers. Careful thought needs to be given to the weighting of responses to ensure the answers give a true reflection of the user and that the feedback is correct.

#### Strand: Digital Technologies Processes and Production Skills

**Content description**: Design, modify and follow simple algorithms involving sequences of steps, branching, and iteration (repetition) ([ACTDIP019](http://www.australiancurriculum.edu.au/technologies/digital-technologies/curriculum/f-10?layout=1#cdcode=ACTDIP019&level=5-6)).
**Explanation**: Students learn that digital systems are made up of simple diagrams (algorithms) that explain the next step. In order to design, modify and follow algorithms students need to investigate different ways data is represented and how decisions are shown through a series of inputs, outputs or processes. By designing algorithms to enable user inputs to be used as decision-makers, students can take into account the variety of factors related to designing an interactive digital tool, such as audience, navigation and the user's experience. By thinking of an algorithm as a series of ‘if’ and ‘then’ statements, students can provide choices for users and give feedback.

Throughout this learning sequence, students design the algorithms, first in a planning stage (using sentences and options) and then calculating a total score (using their knowledge of human ecological impact). The calculator gives the user information about their ecological footprint. By sharing each other’s calculators, students have an opportunity to follow other algorithms. As an extension there is an opportunity for students to use the algorithms to create visual software.