

Integrated Approach to CT: Leveraging Cultural Connections

Activity 2

1. Cut out and match the descriptions to the column.
2. Can you think of any other examples?

	Knowledge (Head) Facts, mental models, strategies	Craft (Hands) Skills through practice	Character (Heart) Emotions, Attitudes, Values
Debugging Identifying, removing, fixing errors			
Decomposition Breaking down information and things into parts			
Algorithmic Thinking Making steps and rules			
Abstraction Removing unnecessary detail			
Pattern Recognition Spotting and using similarities			
Computing Systems			

<p>Strategies to engage in when your code won't run as intended or when LEGO® pieces don't fit together as expected.</p>	<p>Breaking apart your code and/or LEGO® build and being able to explain why and what you're looking for.</p>	<p>Imagining consequences and persevering to explore problems when they arise.</p>
<p>Identifying parts and relationships to break tasks down into smaller, more manageable pieces.</p> <p>Thinking through the individual steps needed to complete an action.</p>	<p>Drawing a diagram.</p> <p>Building a cardboard construction.</p> <p>Coding the development of a line-following robot into smaller tasks such as moving forward, detecting the line using sensors, adjusting motor speed for turns.</p>	<p>Students break down project tasks fairly and make sure everyone has a job by agreeing upon roles.</p>
<p>Designing an algorithm for a line-following robot to follow a black line on a white surface using light sensors. This involves understanding how to interpret sensor values and adjust motor actions accordingly.</p>	<p>Coding a working line of code</p>	<p>Being curious and imagining what might happen if they changed a step in the process/added something new.</p>
<p>Reasoning in regards to what details to keep or what to omit</p>	<p>Drawing a diagram</p>	<p>Students' meta-cognitive skills (thinking about thinking) are called upon as they consider why they have chosen to omit/retain certain details.</p>
<p>Ability to recognise attributes, similarities, differences</p>	<p>Re-use repeating patterns to form basic solutions that apply to a class of problems</p>	<p>Use previous knowledge of patterns and use this information to imagine alternatives and troubleshoot to solve the problem.</p>
<p>Recognise computing components.</p>	<p>Constructing a different model based on hardware limitations.</p>	<p>Caring and perserving as they test, evaluate and debug their robotic model to decide if it is fit for purpose. Compare and discuss different types of input and output of computing systems.</p>