Action Figure

e.g. Goal of the lesson, what students will learn, how it fits into their study, what resources are required etc.

Single Lesson Plan

Tuning In

<table>
<thead>
<tr>
<th>Task</th>
<th>Activity</th>
<th>Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>What is 3D printing? (Think Pair Share)</td>
<td>Using the Prezi “3D Printing” <a href="http://prezi.com/klzwrxdwv7s/?utm_campaign=share&amp;utm_medium=copy">http://prezi.com/klzwrxdwv7s/?utm_campaign=share&amp;utm_medium=copy</a> guide students through identifying the process of using a 3D printer and how it works. Discuss the terminology and have students identify the parts on the actual 3D printer.</td>
<td>Prezi, Youtube videos, paper, pen, ipads, makers empire software</td>
</tr>
</tbody>
</table>

Exploration through play

Students are to explore Makers Empire on the iPads to look at designs and to see the process of printing out one of the designs. (Students work in small groups) Evaluate the 3D prints: What changes would you make? How would you make those changes? How is size and ratio important in 3D print designs?

Upgrading from 2D to 3D:

Pose the question: What is 3D thinking? Have students complete a Think/Pair/Share. History: How did it start? – refer to timeline on [https://www.youtube.com/watch?v=M-MTI8uBprs](https://www.youtube.com/watch?v=M-MTI8uBprs) (stop at 1:27)
Discuss what is the difference between 2D and 3D. A square has two dimensions: length and width. Simply put, it is this: Two dimensional or 2D means that something has two geometrical dimensions, just length and width. Examples are a square, a circle or an illustration, such as a picture. Although a picture is two dimensional, it can suggest depth and seem three-dimensional. In computer gaming we find the term 3D a lot and here it means that perspective images are used.

**Finding Out**

<table>
<thead>
<tr>
<th>Task</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Explore (First Creation)</td>
<td>Students use MakersEmpire to create a simple design using a blend of at least 3 3D shapes.</td>
<td>Ipad</td>
</tr>
<tr>
<td>Critique</td>
<td>Students look at each others designs and critique through the app based on pre-agreed guidelines.</td>
<td>Ipad</td>
</tr>
</tbody>
</table>

**First Structured Design**

<table>
<thead>
<tr>
<th>Task</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Nogard Activity</td>
<td>Complete Sheena Cameron Nogard Activity</td>
<td>Sheena Cameron Comprehension Book</td>
</tr>
<tr>
<td>Creation Time</td>
<td>Students create their Nogard on MakersEmpire</td>
<td>Ipad</td>
</tr>
</tbody>
</table>

**Digi Tech Lesson (2 Lessons)**

<table>
<thead>
<tr>
<th>Task</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Introduction to coding</td>
<td>discussion about what is coding and why it is important</td>
<td><a href="http://hourofcode.minecafedu.com/">http://hourofcode.minecafedu.com/</a></td>
</tr>
</tbody>
</table>
| Reflection                | How might the ability to computationally think affect us and improve our problem solving? | [

**Characteristics**

<table>
<thead>
<tr>
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<th>Activity</th>
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</tr>
</thead>
</table>

**Sketch of Character**

<table>
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<tr>
<th>Task</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Reflection on Previous Lesson</td>
<td>Students reflect on what they found out about their traits and characteristics</td>
<td>Books, Pens, Pencils</td>
</tr>
<tr>
<td>Sketch</td>
<td>Students develop a prototype/sketch in their book, with labels for individual characteristics.</td>
<td>Ipad</td>
</tr>
<tr>
<td>Pair and Share Feedback</td>
<td>Students share model with partner and get feedback to fine tune their design.</td>
<td>Ipad</td>
</tr>
</tbody>
</table>

**Making of Character**

<table>
<thead>
<tr>
<th>Task</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Creation Time</td>
<td>Students begin making their characters on MakersEmpire.</td>
<td>Ipad, books</td>
</tr>
<tr>
<td>Finish and Print</td>
<td>Students get final approval and printing.</td>
<td>3D Printer</td>
</tr>
</tbody>
</table>
Play Game

Task: Play and Trial
Activity: Students use their character in a knockout style competition for Turtle Canyon

Prize
Award winning student with a "prize"

Extension
Students create a narrative using their character.

Downloadable files
Ben_TFEL_Planner.docx
(downloads.lesson_plan_attachments/files/000/000/114/original/Ben_TFEL_Planner.docx?1495756229)

Curriculum
South Australian TFEL:
4.2 connect learning to students' lives and aspirations
4.4 communicate learning in multiple modes
4.3 apply and assess learning in authentic contexts
4.1 build on learners' understandings
Domain 4: Personalise and connect learning
3.4 promote dialogue as a means of learning
2.4 challenge students to achieve high standards with

Australian Curriculum:
Connect three-dimensional objects with their nets and other two-dimensional representations (ACMMG0911)
Identifying The Shape And Relative Position Of Each Face Of A Solid To Determine The Net Of The Solid, Including That Of Prisms And Pyramids (ELBM193)
Representing Two Dimensional Shapes Such As Photographs, Sketches And Images Created By Digital Technologies (ELBM194)
link (http://rdf.australiancurriculum.edu.au/elements/2014/09/4d2e56ba-0b2e-4bc4-9937-9e4600a25347)
Shape
link (http://rdf.australiancurriculum.edu.au/elements/2014/09/8e9e528-c44f-434c-b7b8-9e4600a25347)
Investigate the main components of common digital systems, their basic functions and interactions, and how such digital systems may connect together to form networks to transmit data (ACTDIA014)
link (http://rdf.australiancurriculum.edu.au/elements/2014/09/779b4c5-bef4-42de-a237-997b53706c0c)
Describing Digital Systems As Having Internal And External Components That Perform Different Functions, For Example External Components For Inputting Data Including Keyboard, Microphone, Stylus, Internal Processing Components Include The Central Processing Unit, External Output Components Including Speakers, Projector, Screen; And Data And Information Storage Components Include Cloud And External Devices (ELBT284)
Explaining How Data May Be Transmitted Between Two Digital Systems In Different Ways, For Example That Wires Or Cables Are Used In Wired Networks To Transfer Data From One Digital System To Another, And Radio Waves Are Used To Transmit Data In Wireless Or Mobile Networks (ELBT482)
link (http://rdf.australiancurriculum.edu.au/elements/2014/09/820a58a-c494-452c-94b0-943adb0dbcc8)
Investigating How The Internal And External Components Of Digital Systems Are Coordinated To Handle Data, For Example How A Keyboard, Central Processing Unit And Screen Work Together To Accept, Manipulate And Present Data And Information (ELBT18)
link (http://rdf.australiancurriculum.edu.au/elements/2014/09/5c7c1ff-3b89-4ca5-94da-fcc4e1e5ebf9)
link (http://rdf.australiancurriculum.edu.au/elements/2014/09/94e5f9b0-26be-4a3f-832e-e04f30d88c4)
Design, modify and follow simple algorithms represented diagrammatically and in English involving sequences of steps, branching, and iteration (experimention) (ACTDIP019)
link (http://rdf.australiancurriculum.edu.au/elements/2014/09/8c0d4a4d-26dd-4596-ac2a-841eb3fcbab4)
Following A Diagram Of A Simple Method Of Sorting Numbers Or Words (ELBT240)
link (http://rdf.australiancurriculum.edu.au/elements/2014/09/3a7ee432-6dec-4a1b-826a02c99f0c3)
Experimenting With Different Ways Of Representing An Instruction To Make A Choice, For Example Branches In A Tree Diagram Or Using An 'If' Statement (A Common Statement Used To Branch) To Indicate Making A Choice Between Two Different Circumstances Using A Spreadsheet Or A Visual Program (ELBT13)
Experimenting With Different Ways Of Representing An Instruction To Make A Repetition, For Example Loops In A Flowchart Diagram Or Using A 'Repeat' Statement (ELBT291)
link (http://rdf.australiancurriculum.edu.au/elements/2014/09/1cf61b5-4a8b-4558-9ac2-6cd29f9f5ba)
Designing The Instructions For A Robotic Vacuum Cleaner To Clean A Room (ELBT346)
link (http://rdf.australiancurriculum.edu.au/elements/2014/09/452515d-9ad9-4fc0-a782-5085e85f66b2)
Experiment with text structures and language features and their effects in creating literary texts, for example, using imagery, sentence variation, metaphor and word choice [ACELT1800]

link [http://rdf.australiancurriculum.edu.au/elements/2014/09/81c6252c-2d2f-408b-9be6-9e4600a2a3ca]

Selecting And Using Sensory Language To Convey A Vivid Picture Of Places, Feelings And Events In A Semi Structured Verse Form (ELBE1034)

link [http://rdf.australiancurriculum.edu.au/elements/2014/09/6840e53a-b516-491a-bc0d-9e4600a2a3ca]

Create literary texts using realistic and fantasy settings and characters that draw on the worlds represented in texts students have experienced (ACELT1612)


Using Texts With Computer Based Graphics, Animation And 2 D Qualities, Consider How And Why Particular Traits For A Character Have Been Chosen (ELBE973)