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| **Lesson Plan**  **Year Level 3-4 Date: 19/05/2016 KLA/s: Technologies-Digital Technologies**  **Duration: 2 x 60 min** | | | | |
| **Overview of topic**   * Recognising that data can be represented in various forms. * Applying digital solutions using USER INPUT. | | | | |
| **Content descriptions/Learning outcomes**   * Recognise different types of [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=data) and explore how the same [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=data) can be represented in different ways [(ACTDIK008)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIK008) * Implement simple digital solutions as visual programs with algorithms involving [branching](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=branching) (decisions) and user [input](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=input) [(ACTDIP011)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP011) | | | | |
| **Aims/Objectives**   * To collect, manipulate and interpret data, developing an understanding of the characteristics of data and their representation. * Create an algorithm that requires user input in providing a visual representation of data | | | | |
| **Years 3 and 4 Achievement Standard**  By the end of Year 4, students [describe](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Describe) how social, technical and sustainability factors influence the [design](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Design) of solutions to meet present and future needs. They [describe](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Describe) features of technologies that influence [design](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Design) decisions and how a range of digital systems can be used.  Students outline and define needs, opportunities or problems. They collect, [manipulate](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Manipulate) and [interpret](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Interpret) data from a range of sources to support decisions. Students generate and [record](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Record) [design](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Design) ideas for an audience using technical terms and graphical and non-graphical representation techniques including algorithms. They plan a [sequence](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Sequence) of steps (algorithms) to create solutions, including visual programs. Students plan and safely produce designed solutions for each of the prescribed technologies contexts. They use identified criteria for success, including sustainability considerations, to judge the suitability of their ideas, solutions and processes. Students use agreed protocols when collaborating, and creating and communicating ideas, information and solutions face-to-face and online. | | | | |
| **Ascertaining Prior Knowledge and Skills (Warm up):**   * Word Wall checking for understanding of terminology used in Digital Technologies resources like the words: Data, Algorithms, User Input, branching * Morse Code * What is Data, how can it be represented | **Formative Assessment:**   * Question individually * Question as group * Follow participation Levels * Level of comprehension, willingness to speak up and attempt answers | | **Summative Assessment:**   * Use of Task sheets * Comprehension of tasks * Completion of tasks * Interest shown in lesson level | |
| **Resources Required:**   * Journals * I-Pads * Morse code I-Pad apps * Morse Code alphabet large sheet * Morse code alphabet sheets individual * Desk top Computers * Individual white boards * Journals * Pencils/crayons * Water * Paper towel | | | | |
| **Alternative activities:**  These activities generally require the use of powered devices.  It is advisable to have printed sheets of alternative activities in case of technology being unavailable.  Alternative activities can be found listed under differentiation and extension activities  **Note that sites for visual, hearing and physically impaired students have been included in this lesson plan** | | | | |
| **Warm up/ orientation/ initial engagement**  Time Allocation: 10mins  **WALT – We are learning to…. WILF – What I’m looking for….. TIB – This is because** | | **L&T strategies**  **Organisation and questioning** | | **Differentiation/Response to learner attributes & Extension activities.** |
| * Explain we are going to learn how Data can be represented in different ways visually and as sound files and record finding in our individual journals as we progress * Explain you will be looking to see how well students are able to follow Morse code instructions in creating a visual representation of the task required * The reason we are doing this is so we can see the impact individual choice and interpretation of data and be able to represent it as Sound Wave form and visually (show examples of what these might look like)   **STRATERGIES – What can we use, what would be helpful things we could do when going about our tasks?**  [**Thinking in Technologies**](http://www.australiancurriculum.edu.au/technologies/key-ideas)   * **Computational Thinking (discuss this with students)** * **Design Thinking** * **Systems Thinking**   **Extra Resource assistance**  **These sites can be used to create you worksheet instructions as required**  [**(Resources 1 decoding data)**](http://morsecodealphabet.org/morse-code-decode-quiz-worksheets.html)  [Morse Code Translator](http://morsecodealphabet.org/morse-code-translator.html)  [Hearing Impaired resource assistance:](http://www.lessonplanet.com/lesson-plans/hearing-impaired-heroes/all)  [Visually Impaired resource assistance:](https://www.pinterest.com/bothwellroessle/braille-morse-corps-code/)  [Physically Impaired resource assistance:](http://www.gmc-uk.org/accessibility/assistive_technologies/physical_impairments.asp)  [Visually Impaired resources](http://www.teachingvisuallyimpaired.com/overview-of-assistive-technology.html):  [Learning styles](http://www.ilsa-learning-styles.com/Learning+Styles/Multi-Sensory+Approaches+to+Learning.html) | | * **Inquiry approach** * **Inclusion style** * **Cooperative learning** * **Convergent discovery approach to comprehension** | | [How to create a Learning Profile](http://inclusive.tki.org.nz/assets/Uploads/Developing+Learner+Profiles+infosheet.pdf)  [Differentiation Placemat](https://yelarbonss.eq.edu.au/Supportandresources/Formsanddocuments/Documents/Pedagogical%20Framework/Supporting%20Documents/Differentiation%20Placemat.pdf)  Differentiation Guide-Gifted Students  **Content:**  Alter the depth and complexity, for example, cover less/more material  Draw more from students’ own interests  Presented in smaller, sequenced steps  **Resources:**  Using concrete materials where possible  Pre-teach new vocabulary  Provide clear diagrams/graphics  Make instructions clear and simple  Highlight important terms or information  **Instruction:**  Scaffolding  Reteach some concepts  Questions asked in class at different levels of ability  Extension work  Grouping  Detailed, elaborated feedback  **Student output:**  Produce work in a different format e.g. ICT design completion  **Assessment:**  Modifications to assessment processes simplify or shorten the assessment task allow longer time to complete allow assistance  Modifications to test administration procedures  Moral questioning  Dictate answers on tape  Modifications to grading  Descriptive report  **Metacognition/Higher order thinking**  Social and Emotional safety  **Alternative Activity ideas and Resources**  These activities can be utilised to enhance and facilitate the differentiation suggestions above:  [Morse Code Flash cards](https://quizlet.com/7375/morse-code-flash-cards/)  [Morse Code testing game](http://boyslife.org/games/online-games/575/morse-code-machine/)  [Types of graphic organisers](http://www.education.vic.gov.au/school/teachers/support/Pages/graphicorganisers.aspx)  [There are also alternative activities on the Teacher resource Digital Technologies web page](http://scaffoldlessons.weebly.com/digital-technologies.html) |
| **Body of learning experience**  Time Allocation: 40mins | |
| * Watch Clip [(The History of Morse Code)](https://www.youtube.com/watch?v=bNoOYeS0gs0) * Class discussion * Discuss Alphabet for Morse Code * Show class the [Morse Code Flash cards](https://quizlet.com/7375/morse-code-flash-cards/) these can be presented on an Interactive White Board (IWB) * Provide students their individual sheets and work through the first sheet together * Provide a second sheet have students work through individually (swap with peers to check) * I-Pads open to Morse App 10 minutes free play with the App * Teacher to write a sentence on the whiteboard students to provide answer in Morse and written English * Discuss how we could view sounds visually apart from in written data (lead into-visual) * Watch Clip [(Audacity)](https://www.youtube.com/watch?v=5rNdJb2H2qs&feature=youtu.be) * Class discussion * Provide examples of high, low, short long sounds discuss how these look on Audacity (area for discussion patterns etc. * 5 mins free play with Audacity App * Form class into groups of 4 * Explain we are now going to use our skills to   Create a sound file by decoding the Morse code instructions  Capture it visually  Report on findings to class   * Now asked the students in their groups of 4 to work in pairs * Each pair is to record a voice pattern on the I-Pad and record this sound wave activity visually * Swapping with the other pair each pair now must try to mimic the other pairs recording. * Record findings in journals | |
| **Closing the learning experience – learning consolidation**  Time Allocation: 10mins | |
| * Address any key questions * Students to choose Audacity or Morse App to finish off lesson | |

**Reflection and adjustments**

**Reconstructing:**

**Describing:**

**Confronting: What were my personal challenges?**

**Informing:**