|  |  |  |
| --- | --- | --- |
| Learning Area: Digital Technologies | | |
| Unit Plan: Data Dynamos: Making connections | | |
| Year level: Foundation to Year 2 | | |
| In this unit students will learn and apply digital technology knowledge, understanding and skills through guided activities during individual, small group and whole class activities.  Students will:   * Work with others to create ideas and organise information * Describe, follow and apply a sequence of steps within tasks (digital and non-digital) * Share information and ideas, information and solutions in digital and non-digital environments * Collect, explore and sort familiar data * Use digital systems creatively to present familiar data that shows meaning * Follow safety rules and processes including online safety guidelines   **Connected Curriculum**  Integration of tasks into other subject areas will support, extend and enhance knowledge and understanding. For example, the Australian Curriculum: Mathematics Achievement standards for each of the three year levels describes skills aligned to this unit of work.  Foundation Year - Students answer simple questions to collect information and make simple inferences.  Year One - Students [describe](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Describe) data displays. They collect data by asking questions, [draw](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Draw) simple data displays and make simple inferences  Year Two - They [describe](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Describe) outcomes for everyday events. Students collect, [organise](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Organise) and [represent](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Represent) data to make simple inferences.  **Relevant prior curriculum**  This unit is targeted at **Year 2** but is designed to be adapted for implementation anywhere within the Foundation to Year 2 band. Prior knowledge is considered within the introductory lessons. Students are given opportunity to connect to and build on understanding and skills from experiences at home or other settings.  Students will be engaging with teaching and learning that is working towards curriculum in the Years 3 – 4 Band  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)  Collect, access and present different types of [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=data) using simple software to create information and solve problems [(ACTDIP009)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP009) | | |
| **Australian Curriculum: Digital Technologies – Foundation to Year 2 Band Description** | | |
| Learning in Digital Technologies builds on concepts, skills and processes developed in the Early Years Learning Framework. It focuses on developing foundational skills in computational thinking and an awareness of personal experiences using digital systems.  By the end of Year 2, students will have had opportunities to create a range of digital solutions through guided play and integrated learning, such as using robotic toys to navigate a map or recording science data with software applications.  In Foundation – Year 2, students begin to learn about common digital systems and patterns that exist within data they collect. Students organise, manipulate and present this data, including numerical, categorical, text, image, audio and video data, in creative ways to create meaning.  Students use the concept of abstraction when defining problems, to identify the most important information, such as the significant steps involved in making a sandwich. They begin to develop their design skills by conceptualising algorithms as a sequence of steps for carrying out instructions, such as identifying steps in a process or controlling robotic devices.  Students describe how information systems meet information, communication and/or recreational needs.  Through discussion with teachers, students learn to apply safe and ethical practices to protect themselves and others as they interact online for learning and communicating (ACARA, 2015). | | |
| **Digital Technologies Knowledge and Understanding** | **Digital Technologies Processes and Production Skills** | |
| Selected Content Description:  Recognise and explore patterns in [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=data) and represent [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=data) as pictures, symbols and diagrams [(ACTDIK002)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIK002) | Complementary Content description:  Collect, explore and sort [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=data), and use digital systems to present the [data](http://www.australiancurriculum.edu.au/glossary/popup?a=T&t=data) creatively [(ACTDIP003)](http://www.australiancurriculum.edu.au/curriculum/contentdescription/ACTDIP003) | |
| **Foundation to Year 2 Achievement Standard** | | |
| In this unit of work student learning will be assessed against the following Achievement Standard:  By the end of Year 2, students [identify](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Identify) how common digital systems (hardware and software) are used to meet specific purposes. They use digital systems to [represent](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Represent) simple patterns in data in different ways.  Students [design](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Design) solutions to simple problems using a [sequence](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Sequence) of steps and decisions. They collect familiar data and display them to convey meaning. They create and [organise](http://www.australiancurriculum.edu.au/glossary/popup?a=F10AS&t=Organise) ideas and information using information systems, and share information in safe online environments. | | |
| **General Capabilities:** Engagement with the general capabilities supports young Australians to live and work successfully in the twenty-first century (ACARA, 2012).  ‘In the Australian Curriculum, capability encompasses knowledge, skills, behaviours and dispositions. Students develop capability when they apply knowledge and skills confidently, effectively and appropriately in complex and changing circumstances, in their learning at school and in their lives outside school’ (ACARA, 2012).  This unit engages with the following capabilities. Further information can be obtained from the [*General Capabilities* of the *Australian Curriculum*](http://www.australiancurriculum.edu.au/generalcapabilities/overview/introduction)and the General Capabilities section in the [*Australian Curriculum: Technologies*](http://www.australiancurriculum.edu.au/generalcapabilities/overview/learning-area-specific-advice) | | |
| **Literacy**   * Comprehending and composing texts through listening, reading and viewing * Text, word and visual knowledge | **Numeracy**   * Recognising and using patterns and relationships * Using spatial reasoning | **Information and communication technology**   * Investigating, creating and communicating with ICTs * Managing and operating ICT * Applying social and ethical practices when using ICT |
| **Critical and creative thinking**   * Inquiring – identifying, exploring and organizing information and ideas * Generating ideas, possibilities and actions * Reflecting on thinking and processes * Analysing, synthesizing and evaluating reasoning and procedures | **Personal and social capability**   * Self-awareness * Self-management * Social awareness * Social management | **Ethical understanding**   * Understanding ethical concepts and issues |
| Sequence of teaching and learning: | | |
| Lesson 1 – 2 Introduction: Make connections (each lesson is 60 minutes) | Making connections – introduce topic, connect to prior knowledge, show examples and images to students, break into activity pairs, complete whole class brainstorm | Student Resources: Data Dynamos portfolio for collation of all work samples  Teacher resource: IWB, PowerPoint, Whiteboard |
| Lesson 3 – 4 Creating Graphs (60 minutes per lesson). Teacher discretion on division of ‘creating graphs’ content within the two lessons | Exploring digital systems and their purposes. Explore ways to collect, manage and represent data. | Student Resources: Data Dynamos portfolio for collation of all work samples  Teacher resource: IWB, PowerPoint, Whiteboard |
| Lesson 5 – 6 Solving problems (60 minutes per lesson). Teacher discretion on delivery of ‘solving problems’ content within the two lessons | Create meaning using information systems through problem solving task. | Student Resources: Data Dynamos portfolio for collation of all work samples  Teacher resource: IWB, PowerPoint, Whiteboard |
| Lesson 7 Conclusion: (60 minutes) | Summative assessment task. Students complete work collaboratively to gather and represent data from selected problem. Each student has individual copy of their final product for inclusion in portfolio. | Data Dynamos portfolio for collation of all work samples |
| Feedback | Differentiation: See Supportive Learning environment document  Active feedback partnerships between teacher, students and parents to determine what students already know, how they are progressing and to identify further support requirements  Provide ongoing, timely, instructive and purposeful feedback  Relate feedback to developing skills in Digital Technologies knowledge and understanding | |
| Assessment | | |
| Monitor student learning throughout the teaching and learning process to determine progress and learning needs (observational checklists, formative assessment)  Look for learning in areas such as:   * Representing data as pictures and diagrams * Describing purpose of an information system * Recognising and exploring patterns in data * Collecting, sorting and collating data   Assessment:  Data Dynamos individual portfolio of resources including work samples (formative) and summative assessment task (with rubric)  Observational checklists completed with data for all students in class | | |
| Helpful Websites:  [Cybersafety policy](http://behaviour.education.qld.gov.au/cybersafety/school-staff/Pages/policy.aspx)  [Creep quiz](http://creepquiz.eq.edu.au/) (http://creepquiz.eq.edu.au/)—learn to stay safe online.  [Cybersmart](http://www.cybersmart.gov.au/) ( http://www.cybersmart.gov.au/ )—a cybersafety education program that provides information targeted to young kids, kids and teenagers.  Kids Helpline's [Make Cyberspace a Better Place](http://www.kidshelp.com.au/teens/get-info/cyberspace/) (http://www.kidshelp.com.au/teens/get-info/cyberspace/) program—learn to use the internet safely or contact someone if you need help.  [Think U Know](http://www.thinkuknow.org.au/kids/howtosn.asp) (http://www.thinkuknow.org.au/kids/howtosn.asp)—how to keep your social networking site safe.  [Enhancing online safety for children](https://esafety.gov.au/) (Australian Government, Office of Children’s eSafety Commissioner) https://esafety.gov.au/  [Zippep’s astro circus](https://esafety.gov.au/education-resources/classroom-resources/zippeps-astro-circus) (Australian Government, Office of the Children’s eSafety Commissioner) (https://esafety.gov.au/education-resources/classroom-resources/zippeps-astro-circus) | | |
|  | | |