Australian Curriculum: Year 4 Design & Technologies Unit Plan: Term 2 , 2014

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| Topic | Wheat Production | Length: 10 weeks |
| Year level description | The *Design and Technologies knowledge and understanding* and Design and Technologies processes and production skills strands are described across a two-year band. In their planning, schools and teachers refer to the expectations outlined in the Achievement Standard and also to the content of the *Science Understanding* strand for the relevant year level to ensure that these two strands are addressed over the two-year period. The three strands of the curriculum are interrelated and their content is taught in an integrated way. The order and detail in which the content descriptions are organised into teaching/learning programs are decisions to be made by the teacher.  Learning in Design and [Technologies](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Technologies) builds on concepts, skills and processes developed in earlier years, and teachers will revisit, strengthen and extend these as needed.  By the end of Year 4 students will have had the opportunity to create [designed solutions](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Designed%20solutions) at least once in the following [technologies contexts](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Technologies%20contexts): [Engineering principles and systems](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Engineering%20principles%20and%20systems); [Food and fibre production](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Food%20and%20fibre%20production) and [Food specialisations](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Food%20specialisations); and [Materials and technologies specialisations](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Materials%20and%20technologies%20specialisations). Students should have opportunities to experience designing and [producing](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Producing) products, services and environments.  In Year 3 and 4 students develop a sense of self and ownership of their ideas and thinking about their peers and communities and as consumers. Students explore and learn to harness their creative, innovative and imaginative ideas and approaches to achieve designed products, services and environments. They do this through planning and awareness of the [characteristics](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Characteristics) and properties of [materials](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Materials) and the use of tools and equipment. They learn to reflect on their actions to refine their working and develop their decision-making skills. Students examine social and [environmental sustainability](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Environmental%20sustainability) implications of existing products and processes to raise awareness of their place in the world. They compare their predicted implications with real-world case studies including those from the Asia region, and recognise that designs and [technologies](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Technologies) can affect people and their environments. They become aware of the role of those working in design and [technologies](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Technologies) occupations and how they think about the way a [product](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Product) might change in the future.  Using a range of [technologies](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Technologies) including a variety of [graphical representation techniques](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Graphical%20representation%20techniques) to communicate, students clarify and present ideas, for example by drawing annotated diagrams; modelling objects as three-dimensional images from different views by visualising rotating images and using [materials](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Materials). Students recognise techniques for documenting design and production ideas such as basic drawing symbols, and use simple flow diagrams.  Students become aware of the appropriate ways to manage their time and focus. With teacher guidance, they identify and list criteria for success including in relation to [preferred futures](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Preferred%20futures) and the major steps needed to complete a design task. They show an understanding of the importance of planning when designing solutions, in particular when collaborating. Students identify safety issues and learn to follow simple safety rules when [producing](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Producing) [designed solutions](http://www.australiancurriculum.edu.au/Glossary?a=T&t=Designed%20solutions). | |
| Achievement standard | By the end of Year 4 students [explain](http://www.australiancurriculum.edu.au/Glossary?a=F10AS&t=Explain) how products, services and environments are designed to best meet needs of communities and their environments. They [describe](http://www.australiancurriculum.edu.au/Glossary?a=F10AS&t=Describe) contributions of people in [design](http://www.australiancurriculum.edu.au/Glossary?a=F10AS&t=Design) and technologies occupations. Students [describe](http://www.australiancurriculum.edu.au/Glossary?a=F10AS&t=Describe) how the features of technologies can be used to produce designed solutions for each of the prescribed technologies contexts.  Students create designed solutions for each of the prescribed technologies contexts. They [explain](http://www.australiancurriculum.edu.au/Glossary?a=F10AS&t=Explain) needs or opportunities and [evaluate](http://www.australiancurriculum.edu.au/Glossary?a=F10AS&t=Evaluate) ideas and designed solutions against identified criteria for success, including environmental sustainability considerations. They [develop](http://www.australiancurriculum.edu.au/Glossary?a=F10AS&t=Develop) and expand [design](http://www.australiancurriculum.edu.au/Glossary?a=F10AS&t=Design) ideas and communicate these using models and drawings including annotations and symbols. Students plan and [sequence](http://www.australiancurriculum.edu.au/Glossary?a=F10AS&t=Sequence) major steps in [design](http://www.australiancurriculum.edu.au/Glossary?a=F10AS&t=Design) and production. They [identify](http://www.australiancurriculum.edu.au/Glossary?a=F10AS&t=Identify) appropriate technologies and techniques and [demonstrate](http://www.australiancurriculum.edu.au/Glossary?a=F10AS&t=Demonstrate) safe work practices when producing designed solutions. | |
| General Capabilities | Literacy Numeracy ICT capability Critical and creative thinking Ethical behavior Personal and social capability Intercultural understanding  **How capabilities are addressed:**  **Literacy**   * Use the particular literacies of science * Use a wide range of vocabulary, language practices and texts to support learning   **ICT capability**   * Students access websites and video clips to consolidate their learning   **Numeracy**   * Students construct tables and graphs to represent their findings * Students read and create maps identifying food growing regions.   **Critical and creative thinking**   * Students pose questions, and research facts about food technologies. | |
| Cross Curricular  Priorities | * **Aboriginal & Torres Strait Islander histories & cultures** * **Asia & Australia’s engagement with Asia** * **Sustainability** | |

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| Week | Learning & teaching strategies | | Content Descriptors | Assessment | Resources |
| 1/2 | **WHAT IS WHEAT?**   * Record prior knowledge brainstorm/concept map about wheat. * View video: Wheat Farming Intro. * Develop a definition for wheat: **“Wheat is a grass crop that produces grain that can be used to make food.”** * Draw and label diagram of the structure of wheat grain. (Wheat Fun Fact PDF) * For next lesson (Bring wrappers to school.)   **WHICH FOODS USE WHEAT?**   * View Clickview Video: BTN 21/6/11 (Daily Bread) general info about wheat. * Record facts about wheat. * Investigate foods that contain wheat. Bring wrappers to school. | |  | **Diagnostic Assessment**   * Prior knowledge Brainstorm * Contribution to discussion | * Video: Wheat Farming Intro * <http://www.kidcyber.com.au/topics/Wheatindustry.htm> * PDF - Wheat Fun Fact Guide * Clickview: BTN 21/6/11 (Daily Bread) |
| 3/4 | **GROWING WHEAT**   * Play the interactive game on Grain Chain. * Record when and what the farmer does throughout the year. (The Growing Year web) * Investigate the weather conditions required for wheat crops to grow. (Growing Conditions web)   eg Rainfall, season, sowing time, growing time, harvest, soil types.  **INVENTIONS**   * investigate the ‘stump-jump plough’. * Draw a design for an invention that would be helpful for producing wheat crops. | |  | * Sorting correct order for wheat growing process * researches facts related to growing conditions for wheat | * INTERACTIVE: <http://www.grainchain.com/Resources/7-11/Growing/7-11_GrowingOurWheat.html> * THE GROWING YEAR:  <http://www.grainchain.com/Resources/7-11/ip_the-growing-year> * Growing Conditions: <http://kids.britannica.com/comptons/article-210174/wheat> * WHEAT HEADER <http://www.abc.net.au/landline/content/2013/s3945639.htm> |
| 5 | **MAP OF WHEAT GROWING REGIONS**   * Investigate wheat growing regions in Australia and map. * Investigate wheat growing regions around the world and map. | |  | * Identifies locations on a map of growing regions around Australia and the World | * World Map * Australian map * Atlas * Internet |
| 6/7 | **PROCESSING WHEAT**   * View Clickview video: From Farm to Table: Bread - about the processing of wheat into bread. * Record the stages of bread production from wheat using a story board and label. * Investigate the parts in whole wheat using a sieve. | |  |  | * Clickview: From Farm to Table: Bread. * <http://www.youtube.com/watch?v=63YGhFPI6CE> * Grain Chain: <http://www.grainchain.com/Resources/7-11/The-grain-chain/7-11_Introducing_the_Grain_Chain.html> * Wholewheat (bag) * Seive * Paper |
| 8 | **HISTORY OF WHEAT GROWTH IN AUSTRALIA**   * Comprehension – history of wheat in Australia. (Social Studies p.36) * View YouTube Video: History of Wheat Production 1936 | |  |  | * Social Studies p36 * <http://www.youtube.com/watch?v=-2Vlgj1IbX0> |
| 9 | **WHEAT EXPORT**   * Investigate which countries Australian wheat is exported to. * Create a display showing a map of the world and what they use wheat for. | |  |  | * World Map |
| 10  Assessment | **TEST** | |  |  |  |
|  |  | **Adjustments for student needs**   * Modify tests and activities * Support students with scaffolds and templates | | | |

