 ‘Chicken run’

Duration

10 – 20 weeks (terms 2 and 3)

Summary

‘Chicken run’ is a project based learning unit encompassing mathematics, science and technology, English and visual arts outcomes. Students are involved in the design and construction of a chicken coop to be located in the school grounds. While predominantly a stage 3 focused unit, other stages in the school will have the responsibility of designing and creating one aspect of the coop, resulting in a whole school project. School and community members, parents, engineers, architects, builders and tradespeople will be consulted throughout the project and will also assist with the construction phase. Students will gain an understanding of a wide range of mathematical concepts including; measurement – area, perimeter, length; number – estimation, money (financial literacy), operations, ratios; geometry – 3D space, 2D space, angles, scale and working mathematically. Science and technology concepts addressed will be living world, material world, built environments, working technologically and working scientifically. In English students will be required to research and compose information and persuasive texts. The visual arts component will focus on sketching and constructing three-dimensional models considering scale and form.

Unit overview

Purpose/context

Holmwood public school is a small rural school located in central-western New South Wales. The school has an enrolment of 52 students with classes organised into three groups – ‘stage 3’, ‘stage 2’ and combined ‘early stage 1/stage 1’. Holmwood PS is situated on expansive grounds, surrounded by canola fields and rural properties; however most of the students travel out to school via bus from the nearby township of Cowra. The majority of students live in town, with a small proportion coming from the surrounding farms. “Chicken run” was selected as our project based learning unit as we felt there was scope to integrate it across all stages within the school and reflect our rural setting. We also had the physical space and surroundings for the coop to be successful and not impact on neighbouring residents. The school has established vegetable gardens in the past and a chicken coop would aesthetically fit in with our current setting. The students also saw the opportunity to set up an egg ‘business’ and sell the eggs at the local Cowra Farmer’s Markets. Plans to use the eggs in conjunction with produce from the vegetable gardens was also seen as an opportunity to learn about where our food comes from, the value of recycling food scraps for a purpose and as part of a cooking program in the school. Additional plans to integrate a compost bin and worm farm have also been considered, along with relocating the current vegetable gardens to be closer to the chicken coop, producing a living, breathing outdoor classroom area.

Big ideas

The unit is essentially student-driven. Students are involved in every aspect of the project from the conception of the idea including the design, budgeting and selection of materials, the construction and the consultation process that occurs with ‘experts’ in the field of engineering, architecture and building, and the recording of all aspects of the project via digital means. Students will learn how architects, designers and engineers work to solve problems. They will learn how designing is a collaborative process where ideas are discussed, refined, tested and refined again. They will learn that people with specific skills can work together to produce an outcome, and that there are guidelines and budgetary constraints in which they have to work. They will learn how to care for living things and the importance of recycling. They will learn about sustainability and they will learn that they are capable of creating something special that will be a legacy in our school.

Driving question(s)

How can we improve our school environment? What project could we undertake (as a school) to make our school a better place? How would your idea ‘fit’ in our rural setting and lifestyle? Through these filtering questions, the idea of a chicken coop was decided. From this, the question that drove the project was “if you were given the job of designing a chicken coop for our school, what would it look like and what elements would you need to consider?”

Assessment overview

Assessment for learning – Students prior learning will be assessed in mathematics, in the areas of ‘number, measurement and geometry’.

Students will need to have an understanding of how to;

* calculate perimeter and area
* measure using millimetres, centimetres and metres
* construct and measure angles in degrees
* add, subtract, multiply and divide large numbers with decimal point (money)
* draw and construct 2-dimensional and 3-dimensional shapes/models.

Assessment of Learning - During the project students will be assessed on;

* quality of persuasive writing (which breed is best?) and oral presentation using multimedia
* quality of information text writing
* ability to reproduce sketches to scale, using ratios
* overall design plans incorporating measurement, angles, 2D construction.

Assessment as Learning -

* Editing skills – both in design and as part of their writing – are they able to refine their ideas? Do they attempt to adjust and improve their work? Do they engage in trial and error or test runs?

Collaborative skills – are they a team player? Do they work in partnership with others? Are they able to compromise?

Syllabus outcomes and content

[Mathematics K-10 Syllabus](http://syllabus.nesa.nsw.edu.au/mathematics/mathematics-k10/) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2012

[Science (incorporating Science and Technology K-6) K-10 Syllabus](http://syllabus.nesa.nsw.edu.au/science/science-k10/) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2012

[English K-10 Syllabus](http://syllabus.nesa.nsw.edu.au/english/english-k10/) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2012

[Creative Arts K-6 Syllabus](http://educationstandards.nsw.edu.au/wps/portal/nesa/k-10/learning-areas/creative-arts/creative-arts-k-6-syllabus) © NSW Education Standards Authority (NESA) for and on behalf of the Crown in right of the State of New South Wales, 2006.

Mathematics - Teaching and learning sequences

Task 1 – 3D space

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| Outcome: MA3–14MG   * Identifies three-dimensional objects, including prisms and pyramids, on the basis of their properties and visualizes, sketches and constructs them given drawings of different views.   Communicating, MA3–1WM   * Describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions. | Students investigate what a chicken coop looks like and what elements need to be considered in the design of a functional chicken coop. Examine 3D shapes and determine measurements needed to construct the dwelling.  Students select a simple chicken coop design through researching on the internet. From their choice of design, students identify the 3-dimensional shapes within the design. Students draw the nets of these 3D shapes and construct them from grid paper.   * Name prisms and pyramids according to the shape of their base, eg rectangular prism, square pyramid. * Connect three-dimensional objects with their nets and other two-dimensional representation. * Visualise and sketch nets for given three-dimensional objects. * Recognise whether a diagram is a net of a particular three-dimensional object (reasoning). | * computers for research of the designs of chicken houses * printer * grid paper * pencils and rulers |

Task 2 – Angles

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| Outcome: MA3–16MG   * Measures and constructs angles, and applies angle relationships to find unknown angles.   Reasoning, MA3–3WM   * Gives a valid reason for supporting one possible solution over another | Students work on a hypothetical chicken house design to identify the types of angles (acute, obtuse, right, straight, reflex and revolution) within the design. Students sketch their design using charcoal pencils and then transfer this design to create a 3-dimensional model using paddle pop sticks and hot glue guns.  After identifying the angles students use a protractor to measure and record the size of the angles using degrees.   * Estimate, measure and compare angles using degrees. * Identify the arms and vertex of an angle where both arms are invisible, such as for rotations and rebounds. * Recognise the need for a formal unit for the measurement of angles, record angle measurements using the symbol for degrees (°). * Measure angles of up to 360° using a protractor. * Explain how a protractor is used to measure an angle (communicating). * Explore and explain how to use a semicircular protractor to measure a reflex angle (communicating, reasoning). | * protractors * teacher made worksheets of a chicken coop with identified angles * charcoal pencils * art paper * paddle pop sticks * hot glue guns * protractors |

Task 3 – Area

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| Outcome: MA3-10MG   * Selects and uses the appropriate unit to calculate areas, including areas of squares, rectangles and triangles.   Outcome: MA3-5NA   * Selects and applies appropriate strategies for addition and subtraction with counting numbers of any size   Communicating, MA3-1WM   * Describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions | Students use the formulas of a triangle and a rectangle to calculate the area of each of the sides of the chicken coop. Identify the area required for the timber and bird mesh sections. Students use a chicken coop design to determine the area of fencing needed to fill in the sides, roof and floor area of a chicken coop. From the determined areas students then are introduced to calculating the costs for required materials.   * Calculate the areas of rectangles using familiar metric units. * Students record calculations used to find the areas of rectangles (including squares). * Students apply measurement skills to solve problems involving the areas of rectangles (including squares) in everyday situations, eg determine the area of the side of the chicken coop. * Students record, using words, the method for finding the area of any rectangle, eg 'Area of rectangle = length × width'. * Students investigate the area of a triangle by comparing the area of a given triangle to the area of the rectangle of the same length and perpendicular height, eg use a copy of the given triangle with the given triangle to form a rectangle. * Students explain the relationship between the area of a triangle and the area of the rectangle of the same length and perpendicular height (communicating, reasoning). | * teacher made worksheets of chicken coop with identified angles, lengths and heights * calculators |

Task 4 – Length

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| Outcome: MA3-9MG   * Selects and uses the appropriate unit and device to measure lengths and distances, calculates perimeters, and converts between units of length.   Reasoning, MA3-3WM   * Gives a valid reason for supporting one possible solution over another.   Communicating, MA3-1WM   * Describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions | Students completed 3D sketches of their chicken coops will be submitted to the ‘students’ representative council to look at the pros and cons of each design. Once an analysis of the designs has been completed, students vote on the most suitable design that could be used for the school’s chicken coop.  Stage 3 students attend an excursion to a nearby school that has a fully functional chicken coop. Students will take photos, make sketches and take measurements of the chicken coop.  Students prepare a list of questions to ask the school students and staff including how they care for the chickens, the size of the chicken coop and the pros and cons of keeping of animals on school premises.  After the school visit to view the chicken coop, students brainstorm and select and apply appropriate problem solving skills to decide on a suitable size for the chicken coop, by giving valid reasons to support their decisions and possible solutions. The students:   * will choose appropriate units of measurement for length and recognise the need for a formal unit. They will select and use the appropriate unit and measuring device to measure lengths and distances and describe how a length or distance was estimated and measured (communicating, problem solving). Students question and explain why two students may obtain different measurements for the same length, distance or perimeter (communicating, reasoning). * estimate lengths and distances using an appropriate unit and check by measuring Students record lengths and distances using combinations of millimetres, centimetres, metres.   The selected design will be reviewed by a builder and a local architect for suitability.  Plans for the chicken coop will then be professionally drawn by an architect with the recommended sizing for height, length, area and perimeter from the students’ data and investigations. | * camera * video/iPad * student questionnaire * excursion permission note * risk assessment * tape measure * pencils, art paper * computers and internet |

Task 5 – Number

| Syllabus outcomes/content | Teaching, learning and assessment | Resource |
| --- | --- | --- |
| Outcome: MA3-5NA   * Selects and applies appropriate strategies for addition and subtraction with counting numbers of any size | Using the designs and plans from the architect the students are divided into small groups to complete a costings plan for the construction of the chicken coop.  During this process the students will explore financial literacy to develop a spreadsheet needed for the materials and supplies, using number concepts such as addition, subtraction, multiplication and division and work within a designated budget. Once a budget has been established for the costing of the materials and supplies needed. Students will work closely with the builder to identify the suitable materials needed for the construction. Students will use the internet to research how much items cost from “Bunnings” by going to the Bunnings website at: <https://www.bunnings.com.au/>. Students are scaffolded in their learning to understand the ordering process of such products needed.   * Students use numbers of any size in real-life situations, including in money problems;   + create simple financial plans   + use knowledge of addition and subtraction facts to create a financial plan, such as a budget, eg organise a class celebration on a budget of $60 for all expenses   + record numerical data in a simple spreadsheet (communicating)   + give reasons for selecting, prioritising and deleting items when creating a budget (communicating, reasoning). | * budgeting sheet * internet and ‘bunnings’ catalog |

Task 6 – Scale

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| Outcome: MA3-10MG   * Selects and uses the appropriate unit to calculate areas, including areas of squares, rectangles and triangles | Using the designs and plans from the architect the students will be divided into small groups to complete activities related to mathematical scale. Students will convert measurements on the architect’s plans to scale and mark out the area for construction of the chicken coop in the playground using builder’s string.   * Solve problems involving the comparison of area and perimeter using appropriate scale. | * understanding scale information guidelines   + Maths is fun website — page on scale <https://www.mathsisfun.com/definitions/scale.html>   + Maths is fun website — page on ratio <https://www.mathsisfun.com/numbers/ratio.html>   + A YouTube video on drawing to scale <https://www.youtube.com/watch?v=2V8GBZGwRmk> * builder’s string |

Task 7 – Practical work

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| Communicating, MA3-1WM   * Describes and represents mathematical situations in a variety of ways using mathematical terminology and some conventions   Problem Solving, MA3-2WM   * Selects and applies appropriate problem-solving strategies, including the use of digital technologies, in undertaking investigations   Reasoning, MA3-3WM   * Gives a valid reason for supporting one possible solution over another | During week 7 of term 3 students in stage 3 class will begin construction of the chicken coop. Working closely with a ‘Site Foreman’ and ‘Builder’ and under close supervision of the ‘STEM/science’ teacher, students will apply the skills and knowledge that they have learnt in class to physically construct the chicken coop.  The processes will include but not limited to the following: measuring, working with angles, using appropriate tools to assist with construction, calculating the amount of materials needed. Community and parent volunteers will also be rostered to assist with the building of the chicken coop.  Prior to construction week all works must be authorised by the Department of Education Assets Management Unit. A ‘risk assessment’ must also be completed and included with the architect’s plans, running sheet of materials and ‘parent helper’ roster and copies of this forwarded to AMU and the local Work Health and Safety consultant. ‘Working With Children Checks’ are also a Department of Education requirement for all volunteers. All volunteers must be briefed regarding site safety and familiarised with the risk assessment.  (Please note: The zincalume roof will be constructed by the builder – not the students.)  A digital record of the build will be recorded by the students using digital/flip cameras. These images will be compiled into a digital story to be viewed at the official opening of the HPS chicken coop in term 4. | * risk assessment * volunteers working with children check * tape measures * student safety wear, glasses, leather boots, gloves * post hole digger (manual) * shovels * cordless drills * hammers * nails * hand saws * digital camera, flip camera, laptops. |

Science and technology – Teaching and learning sequences

Working scientifically and working technologically - Task summary

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| Science – Working technologically, ST3-5WT   * A student plans and implements a design process, selecting a range of tools, equipment, materials and techniques to produce solutions that address the design criteria and identified constraints   Values and Attitudes, ST3-1VA   * A student shows interest in and enthusiasm for science and technology, responding to their curiosity, questions and perceived needs, wants and opportunities. | Throughout the entire duration of the ‘chicken run’ project, students will be utilising their scientific enquiry skills. Students will be required to brainstorm, work collaboratively and individually to investigate and research their own ideas of how the construction of the chicken coop will be possible.  With scaffolding and careful planning of each step, students will begin to understand how mathematics, science, engineering, and designing and planning of a project will result in an end product.  Throughout the process students will engage in trial and error investigation to understand and describe how properties of materials determine their use for a specific purpose.  Students will investigate the physical characteristics and needs of chickens; including how to care for chickens, recommendations for the suitability of housing chickens and be introduced to policies and procedures that need to be followed in order to house animals in a school.  Students will work in pairs to research a breed of chicken that is suitable to be kept in a school chicken coop. Students will orally present their findings on their chosen breed of chicken to the school during a designated time at assembly each week. From this presentation, all students and staff in the school will vote on the most suitable breed of chicken to have in Holmwood Public School’s chicken coop | Refer to each of the following tasks’ resources. |

Task 1 – Information reports

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| ST3-1VA   * A student shows interest in and enthusiasm for science and technology, responding to their curiosity, questions and perceived needs, wants and opportunities.   ST3-11LW – Living World   * Describes some physical conditions of the environment and how these affect the growth and survival of living things. | Students will use the ‘keeping animals in school’ website <http://nswschoolanimals.com/poultry-fowls/> to identify breeds of chicken which would be suitable to keep in the school environment.  Once students have identified 6 different types of chickens (Isa- Brown, Hy-lines, White Leg Horns, Rhode Island Red, Light Sussex, Bantam) the students will work in pairs to investigate and produce an information report on their chosen breed.  On completion of the information reports the students will present their findings at weekly assemblies to the entire student body in the form of a multimedia presentation.   * The growth and survival of living things are affected by the physical conditions of their environment. * Students make predictions about how changing the physical conditions of the environment impacts on the growth and survival of living things, for example how is the building of the chicken coop going to provide shelter for the chickens. * Students use gathered data to develop explanations about how changing the physical conditions of the environment affects the growth and survival of living things. * Research the conditions needed for a particular animal to grow and survive in its environment. | * information report guidelines * rubric for writing * computers/internet * information report guidelines * usb flash drive |

Task 2 – Deciding suitable materials

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| ST3-13MW – Material World   * Describes how the properties of materials determine their use for specific purposes | Students work with the architect and the builder to understand the purpose and structural features of the materials chosen for the construction of the chicken coop. The properties of materials determine their use for specific purposes.  Students:   * Identify the properties of materials used in a familiar product and relate them to its use. * Explore how materials are used in innovative ways for specific purposes, eg the use of chicken wire and bird mesh for the purpose of building a chicken hut. * Describe how scientific and technological knowledge about the properties of materials can be used to inform decisions about use for their specific purposes. | * architectural plans of the chicken coop * internet access and computers * Bunnings catalog |

Task 3 – How do we build a chicken coop?

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| ST3-14BE – Built Environment, Information and Products   * Describes systems in built environments and how social and environmental factors influence their design | Throughout the project students will research and apply knowledge when working scientifically and mathematically to investigate suitable design aspects and functionality of a chicken coop in our school setting.  Students will be required to identify risks associated with housing the chickens, such as ensuring the structure is a fox proof enclosure, and understand the ways in which the students and staff will interact with project.  Students will examine examples of chicken coops on the internet and by visiting venues and other schools with existing chicken coops become fully aware of the needs, requirements, advantages and disadvantages of certain designs. | * computers * internet access |

Task 4 – Watering systems

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| ST3-14BE – Built Environment, Information and Products   * Describes systems in built environments and how social and environmental factors influence their design | Stage 3 students will be paired with their stage 2 peers to mentor and guide them in their investigation and research project on building an automatic watering system suitable for chickens. During this process students will need to examine different watering systems that are easily accessible to chickens and be sustainable during holiday periods. Once information is gathered the students will present their findings as a procedure in a poster format.  Students:   * observe how people interact within a built environment and describe how its design meets the needs of the users, eg the way people use and interact with the chickens * consider range of factors when designing and constructing built environments * examine some built environments, eg a local playground , chicken coops and identify some factors that have been considered in the design, such as purpose, access, aesthetic and environmental considerations, and movement within the space * describe how the design and construction of a built environment may be modified to better suit the needs of users. | * information ‘PowerPoint’ for procedures and poster presentations * an example of a poster * card board * glue * use of laptop computers and internet * printer |

English – Teaching and learning sequences

Task 1 – Persuasive writing

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| Writing and Representing, EN3-2A   * Composes, edits and presents well-structured and coherent texts | Students will be introduced to the structure and purpose of Persuasive Texts/Expositions. Students will identify the features of persuasive writing and discuss social purposes of expositions and persuasive texts. Select questions for students to consider both ‘for’ and ‘against’ arguments.  View a YouTube video on persuasive text using television commercials — <https://www.youtube.com/watch?v=azttKmT0rVc>  Students are asked the question, “Should Holmwood Public School build a chicken coop?”  Students develop their plans using a checklist and planning sheet. After planning, students draft, edit and publish their written text.  Students plan, draft and publish imaginative, informative and persuasive texts, choosing and experimenting with text structures, language features, images and digital resources appropriate to purpose and audience.  Students understand and apply knowledge of language forms and features.  Students investigate how complex sentences can be used in a variety of ways to elaborate, extend and explain ideas. | * text type features of exposition writing and expositions * rubric for expositions * PowerPoint on writing techniques * planning sheet |

Task 2 – Information report writing

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| Reading and Viewing, EN3-3A   * Uses an integrated range of skills, strategies and knowledge to read, view and comprehend a wide range of texts in different media and technologies | Students are given an introduction to information reports. Discuss the structure and purpose of an information report.  In pairs students research the features of one of the following types of chickens that are suitable for keeping in schools – Isa Brown, Hy-Lines, White Leghorns, Rhode Island Red, Light Sussex and Bantam chickens. Students write and present their information report to the rest of the school at the weekly school assembly. After all reports have been completed and presented to the school each child will take a vote to decide the most appropriate breed of chicken to have in the school.  Students are issued with a paddle pop stick and vote for the chicken of their choice.  Students understand and appreciate the way texts are shaped through exploring a range of language forms and features and ideas.  Students experiment and use aspects of composing that enhance learning and enjoyment.  Students explore and analyse the effectiveness of informative and persuasive devices in texts.  Students understand and use the key elements of planning, composing, reviewing and publishing in order to meet the increasing demands of topic, audience and language. | * text type features of Information reports * rubric for information report * PowerPoint on writing techniques * computers * Microsoft Word * internet * survey boxes * paddle pop sticks |

Task 3 – Oral presentations

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| Speaking and Listening, EN3-1A   * Communicates effectively for a variety of audiences and purposes using increasingly challenging topics, ideas, issues and languages forms and features | During assembly each week students take it in turns to present their information reports to the school on their selected breed of chicken. They will also present their chicken coop design proposal (3D models and sketches) and an update on the ‘chicken run’ project to the school. This is also published in the School Newsletter. A vote is made on the type of chickens the school will house.  Applications made to Department of Education Assets Management Unit to build a Chicken Coop at Holmwood Public School. Students;   * compose imaginative and informative texts that show evidence of developed ideas * compose texts that include sustained and effective use of persuasive devices, eg texts * reread and edit students' own and others' work using agreed criteria and explaining editing choices * use a range of software, including word processing programs, learning new functions as required to create texts * compose imaginative and informative texts that show evidence of developed ideas | * plans from the architect * completed risk assessments * application forms |

Task 4 – Research and note taking

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| Reading and Viewing, EN3-3A   * Uses an integrated range of skills, strategies and knowledge to read, view and comprehend a wide range of texts in different media and technologies | Students will conduct research on the recommendations from the RSPCA website for the building of chicken coops and list the requirements needed when designing a suitable enclosed environment for chicken. Students document their findings using Microsoft Office 365  Students view video from animals in schools (poultry) <http://nswschoolanimals.com/poultry-fowls/> and take notes on relevant information about keeping poultry in schools.  Students learn that policies and procedures govern the building of dwellings and authority needs to be sort from the local council and Department of Education to have permission to build such a project on school grounds. Students:   * understand how texts vary in purpose, structure and topic as well as the degree of formality * appreciate how demanding texts, eg extended novels and informative texts, contain increasing levels of complexity and abstraction to enhance enjoyment * explain and justify the responsible use of digital technologies. | * Poultry Keeper website — page on looking after chickens <https://poultrykeeper.com/general-chickens/looking-after-chickens-ten-easy-steps-to-getting-started/> * Kiddy House website — page on chicken lesson plans <http://www.kiddyhouse.com/Farm/Chicken/chickenlessons.html> * RSPCA website — page on what type of house should be built for backyard hens <http://kb.rspca.org.au/what-type-of-house-should-i-build-for-my-backyard-hens_102.html> * laptops * Microsoft 365 |

Task 5 – Research and submit

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| Writing and Representing, EN3-2A   * Composes, edits and presents well-structured and coherent texts | Analyse the requirements that have been researched to determine design features for the chicken house. Contact Cowra Council to determine if any permits or building applications need to be completed before construction. Contact Work Health and Safety Consultant – Department of Education about the project and check risks associated with building the chicken house. Students jointly construct an email to all governing bodies and communicate effectively the purpose of the enquiry. Students:   * compare texts including media texts that represent ideas and events in different ways, explaining the effects of the different approaches * analyse how text structures and language features work together to meet the purpose of a text * examine some built environments, eg a chicken coop and identify some factors that have been considered in the design, such as purpose, access, aesthetic and environmental considerations, and movement within the space * describe how the design and construction of a built environment may be modified to better suit the needs of users.   A range of factors needs to be considered when designing and constructing built environments. | Department of Education Policies and Procedures - Website page for DoE policies and procedures  <https://education.nsw.gov.au/policy-library> |

Visual arts – Teaching and learning sequences

Task 1 – Chicken coop design

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| VAS3.1   * Investigates subject matter in an attempt to represent likenesses of things in the world.   VAS3.3   * Acknowledges that audiences respond in different ways to artworks and that there are different opinions about the value of artworks.   VAS3.4   * Communicates about the ways in which subject matter is represented in artworks. | Students research a variety of designs for a chicken coop, identifying the recommended requirements for housing chickens from the RSPCA and Animals in Schools website. Students use charcoal to create a 3D sketch of their design.   * Students considers a range of artworks and their subject matter including paintings, drawings, photographs, video and digital works, sculptures, installations and buildings, prints and posters, digital animations, ceramic and fibre works. | * charcoal pencils * art paper |

Task 2 – Chicken coop model

| Syllabus outcomes/content | Teaching, learning and assessment | Resources |
| --- | --- | --- |
| VAS3.1   * Investigates subject matter in an attempt to represent likenesses of things in the world.   VAS3.3   * Acknowledges that audiences respond in different ways to artworks and that there are different opinions about the value of artworks.   VAS3.4   * Communicates about the ways in which subject matter is represented in artworks. | Students use the knowledge gained from mathematics lessons relating to 2D and 3D shapes to construct possible designs of chicken houses from paddle pop sticks to represent chicken houses/coops and runs.   * Students examines a range of concepts and their relationships to selected forms and experiments with such things as the expressive use of colour in painting or drawing, the abstract and/or monumental qualities of sculpture, the sequencing of events in a video, digital work or cartoon, the use of found objects and other objects in an installation or sculptural work. | * paddle pop sticks * hot glue guns * glue sticks * student 3D designs |

Culminating event or activity or product

Plans are to hold a “grand opening” and “naming ceremony” of the HPS chicken coop on Friday 4th November (term 4 week 4). Local media, the mayor and deputy-mayor of Cowra, Director PSNSW Duncan Auld, K-6 mathematics advisor Katherin Cartwright, K-6 science and technology advisor Tanya Coli, P&C representatives, school patrons, along with professionals, parents and those who have assisted with the construction of the build will also be invited. The students will put on chicken-themed lunch following the opening ceremony and a multimedia presentation will be shown to visitors and students.

Evaluation

Evaluation throughout the unit will occur regularly as the lead teacher will be required to discuss with the principal and other staff members aspects of the project at fortnightly staff meetings. The evaluation of the STEM program “chicken run” will occur through routine classroom teaching program evaluations completed by the principal in week 7 each term. This will ensure outcomes are being addressed in the context of the yearly scope and sequence. DoE STEM consultants will provide feedback on the project as milestones are completed and sent for review and advice.

A summative evaluation will occur towards the end of the unit to gauge the learning, as well as the interest and engagement of the students in the STEM project. Students will be encouraged to complete a questionnaire using ‘survey monkey’ and the results will be analysed for future project-based learning activities.

Questions will be as follows:

* What class are you in? kinder/stage 1/stage 2/stage 3
* What was the best part about the STEM project “chicken run”?
* What aspects of “chicken run” did you find frustrating or difficult?
* Would you like to participate in another project-based learning opportunity in the future?
* Which areas of the project did you enjoy the most? (select as many as you like) mathematics/science/technology/art/design/English
* Write one thing you learnt from participating in the “chicken run” project.
* How do you think we could improve our teaching of STEM in the future?
* As part of our school evaluation this year, parents will also be asked for their input into the effectiveness of the STEM project later in term 4.

For staff, evaluation will be through open discussion during staff meetings.

The following questions may act as a guide to these discussions:

* Was the teaching of this project based learning unit successful for the students and staff?
* How do we identify that the project was successful/unsuccessful?
* Were the students engaged throughout the process of learning?
* What areas do we feel need attention?
* Did we effectively incorporate aspects of mathematics, science, technology and engineering into the project?
* Were we able to stick within the budget?
* Was the community level of engagement in the project what we anticipated?
* Where do we go from here? (i.e how do we make this project sustainable?)