Australian Government
Great Barrier Reef Marine Park Authority

Reef Guardian School

Wildlife Emergency Express

Design and Digital Technologies Unit

Teacher Resource

'We need learning which explores and acts on local and global issues and empowers students to make informed and socially just decisions about their own and other's future.'

Source: Australian Curriculum, STEM education must go beyond robotics and coding accessed 4 February 2025.

First Nations Acknowledgement

The Reef Authority acknowledges the expertise, wisdom, and enduring connections that have informed the guardianship of the Reef for millennia. We pay our respects to the Traditional Owners as the first managers of this land and sea Country, and value their traditional knowledge which continues to inform the current management and stewardship of the Reef for future generations.

Contents

Welcome Teachers

We are excited to welcome you to our 'Wildlife Emergency Express' Digital Technologies and Design and Technologies Unit.

This unit of STEM is designed for Digital or Design and Technology students to enhance and demonstrate their creative thinking and problem-solving skills whilst working on a real-world dilemma. We hope you find this resource valuable to incorporate into your teaching or as a framework to spark ideas and build upon for a similar unit.

By the end of this unit students should be able to **recall** a fun morphological or biological fact about their chosen animal. **Identify** more than one reason that their chosen species would need transportation. **List** a least one **method** used to transport their chosen species. **Design** or **improve** a transport method for their chosen species. **Communicate** their design to other, explain how it works and how it supports the needs of their chosen animal.

This unit has been developed for students in Years 5 to 8 and can be adapted for Foundation to Year 4. It is structured as a sequence of **10 one-hour lessons** but can be adjusted to suit the needs and requirements of individual schools. The unit may be delivered over a flexible timeframe of **5 to 10 weeks**. Sample lesson plans have been provided to support teachers in delivering the unit and can be used as is or adapted to meet specific learner needs and classroom outcomes. While this unit focuses on students designing a new method for transporting a local wildlife species, the content and resources can easily be adapted to support students in redesigning an existing transport method used for Green Sea Turtles or another chosen species.

The teacher resource guide includes ten lesson plans, a Power point, a Student Planning Workbook, links to ACARA, additional resources and the iSTEM pedagogical framework. Examples of Marking Criteria Matrixes are found in Appendix 1.

This unit aligns with the Australian Curriculum V9.0 across the learning areas of Technologies and Science, as well as the general capabilities and cross-curriculum priorities, including Critical and Creative Thinking, Sustainability, and Aboriginal and Torres Strait Islander Histories and Cultures. Specific curriculum links are provided later in this resource.

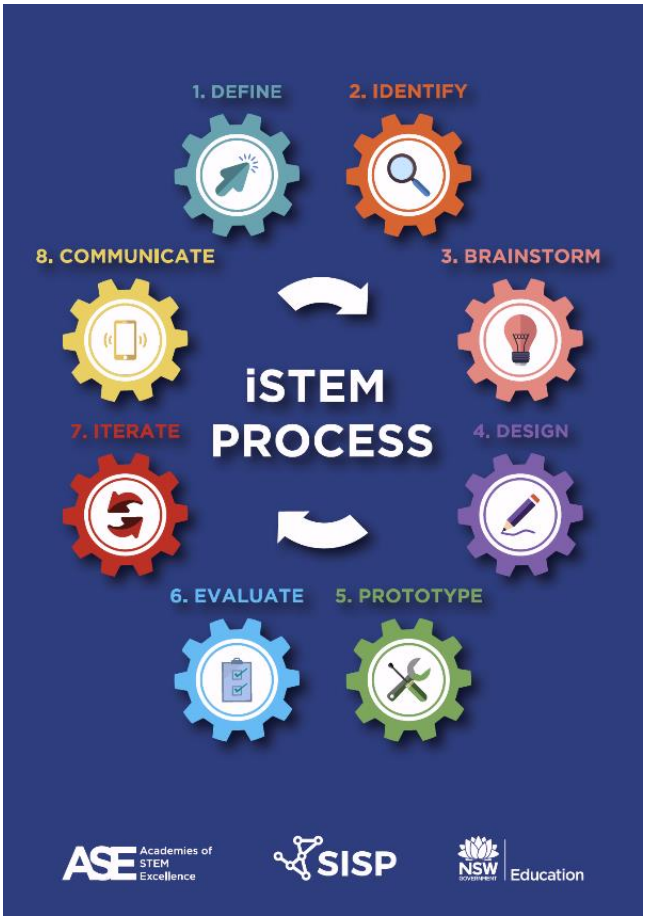
Lesson one includes a PowerPoint that has been developed to support this unit and help set the scene for the student project. The PowerPoint uses the Green Sea Turtle as a case study to introduce students to the concept of wildlife transport, encouraging them to consider why animals may need to be moved and the specific characteristics that should be considered when designing transport methods and devices.

A student workbook has been developed for use across the 10 lessons to support students as they progress through the unit. The workbook follows the iSTEM pedagogical framework and assists students in developing an understanding of their chosen animal and including how and why it may need to be transported. It also supports students in developing and evaluating their design solutions. The workbook is available as a fillable online PDF and can also be printed as a booklet.

iSTEM Pedagogical framework

As this unit of work is designed around the iSTEM process, the following may assist in incorporating the process into the unit.

The iSTEM process centres around eight different steps of design.



1. **Define** – Clearly identify and understand the problem.
2. **Identify** – Determine the constraints such as budget, time, skills and resources.
3. **Brainstorm** – Generate a range of possible solutions and ideas.
4. **Design** – Select the best idea and develop a detailed plan.
5. **Prototype** – Build a model of the design
6. **Evaluate** – Test the solution to see how well it solves the problem.
7. **Iterate** – improve and refine the solution based on testing and feedback.
8. **Communicate** – Present and share the final solution and process.

Each lesson and accompanying lesson plan in this unit has been structured around a stage of the iSTEM process to support its integration into teaching and learning.

More information can be found at iteachstem.com.au.

Lesson One: Define

Outcome:

Using Green Sea Turtles as a case study, by the end of this lesson students should:

- Understand that some animals need specific considerations when being transported for treatment, rehabilitation and release.
- Begin to think about wildlife within their own regions that also might need considerations when transporting.

Lesson Structure:

Introduction

- The *Wildlife Emergency Express* PowerPoint and teacher notes can be used to introduce students to Green Sea Turtles as a case study.

Exploring the Challenge

- Using sea turtles as an example, explore the idea that some wildlife need special considerations when transporting them, due to size, safety, modes of transport available or other reasons.

Defining the task

- Define the task ahead and begin some discussions with the students around animals within your local area that might need special considerations when transporting.
    - The task is: *Use the iSTEM design process to research, design, create, test, and improve a prototype that can safely transports a chosen local animal, based on its unique characteristics and needs.*
- Students can, as a class or individually, research some local iconic animals, marine animals, endangered animals, or other animals of your choosing that might be relevant to the topic
- Students can then answer the following questions in their workbooks:
    - *List some animals found in your local area that may need transporting.*
    - *What animal have you chosen and why?*
- Students can then add an image of their chosen animal to their workbooks and label all the relevant characteristics, such as, gills, tail, claws etc.

Resources:

- Wildlife Emergency Express PowerPoint
- Student Workbook – Lesson one
- Research resources to research local animals

Lesson Two: Identify

Outcome:

Students should begin to:

- Build a clearer understanding of the wildlife transport dilemma introduced in lesson One.
- Identify the needs of a chosen animal and how these needs may influence transport design.

Lesson Structure:

Wildlife transport dilemma revisit

- You might like to revisit the wildlife transport dilemma introduced in Lesson one using the Wildlife Emergency Express PowerPoint.
- Students can be introduced to their chosen animal and if possible, to a local wildlife group that supports that animal. This might help students to connect to the challenges of their chosen animal.
    - Students can research reasons why their chosen animal might need transporting and how their chosen animal is currently transported. And then answer the corresponding questions in their workbooks.

Exploring the Animals needs

- Students can do some more research on the characteristics of their chosen animal and then can be encouraged to have a discussion to determine the specific needs of their chosen animal.
- Some questions that can get the discussion stated might include:
    - "*Does the animal breath in air or water?"*
    - *"Does the animal need specific protection, such as win cushioning?"*
    - *"Can the animal pose a risk to humans whilst being transported*?"

Student planning

- The mission statement slide of the Wildlife Emergency Express PowerPoint can be revisited to help clarify the mission of the unit.
- Students can then discuss and record the following in their student workbooks:
    - *What information do you already know about your animal?*
    - *List any specific requirements that your design will need based on your animals' characteristics?*

Resources:

- Wildlife Emergency Express PowerPoint
- Student Workbook – Lesson Two
- Access to resources about chosen animal

Lesson Three: Brainstorm and Design

Outcome:

Students will:

- Build on their understanding of the wildlife transport dilemma.
- Identify what success might look like for their design.
- Brainstorm a range of possible design ideas to transport their chosen animal.

Lesson Structure:

Mission revisit

- You might like to begin by revisiting the questions in the student planning workbook from the previous lesson. This may help students to reconnect with the mission that they are working on.

Generating ideas

- Students can then begin to brainstorm what their designs might look like for the specific needs of their animal.
- Encourage the use of multiple methods of brainstorming such as lists, diagrams, or mind maps.
- If students get stuck, you can remind them of the specific requirements of their animal and help them with thinking of methods to overcome these.

Looking ahead

- Students can be encouraged to look ahead and think about what materials they will needed to make their prototypes. Will they use physical materials or computer maker space software?

Resources:

- Student Workbook – Lesson Three
- Additional paper for brainstorming if needed
- Access to physical or digital makerspace to help generate ideas

Lessons Four – Five: Prototype

Outcome:

Students will:

- Select and refine a design idea to overcome the wildlife transport dilemma for their chosen animal.
- Develop their design through further planning or sketches.
- Begin to create a prototype of their design using physical or digital methods.

Lesson Structure:

Prototype planning

- Students might revisit their brainstorm and choose the design they would like to develop.
- Students could describe or sketch what their chosen design might look like.
- Students may create a list of materials they might need to develop their prototype.
- Students can be encouraged to discuss their design ideas with the teacher before beginning construction.

Developing the prototype

Physical Design

- Students may begin collecting materials and constructing their first prototype.
- Students should ensure their prototype and materials are labelled and stored safely between lessons.
- A shoebox or small storage container may help keep equipment and prototypes together.

Digital Design

- Students developing a digital prototype should ensure their design file is clearly named and saved in the correct folder.

Resources:

- Student Workbook – Lesson Four – Five
- Additional paper for designing or sketching student ideas
- Maker space tools, materials and equipment

  Or
- Computer lab and digital maker space
- Space to store physical designs between lessons

Lesson Six: Prototype

Outcome:

- Students should have completed their prototype either physically or digitally.
- Brainstorm and agree on a scientific method to test and evaluate their prototypes.

Lesson Structure:

Completing the prototype

- Students continue developing and completing either their physical or digital prototype.
- Students can update their materials list to ensure all equipment used is recorded.
- Students creating a digital prototype could also include a proposed materials list or create a labelled digital diagram of their design.

Determine evaluation method

- As a class, students can discuss and brainstorm a scientific method that can be used next lesson to test and evaluate their prototypes. For example:
    - A timed test to collect and transport the animal, or
    - Transport the animal safely over an obstacle course (relevant to where the animal might normally be found).

Resources:

- Student Workbook – Lesson Six
- Maker space tools, materials and equipment

  Or
- Computer lab and digital maker space

Lesson Seven: Evaluate

Outcome:

Students:

- Test and evaluate their prototypes using an agreed method.
- Consider how well their design responds to the wildlife transport dilemma.
- Reflect on/ review their design and evaluate how well it worked and what may need improvement.

Lesson Structure:

Evaluation method

- Students can review the method of evaluation discussed last lesson to ensure that all students understand how the prototypes will be tested.
- Students can fill out the "*How did/would you test your design?"* question in the student planning workbook.

Testing the prototype

- Physical prototypes - Each design can be tested to observe how effectively it supports the intendent purpose of safely transporting your chosen animal.
- Digital prototypes – Students can present their design to the class or a small group and undertake a group discussion where other students can respectfully ask questions to clarify and help evaluate the design.

Evaluate the design

- After testing their designs, students can evaluate their designs by answering the following questions in their student planning workbooks:
    - *What worked well?*
    - *What changes do you need to make to improve your design?*

Resources:

- Student Workbook – Lesson Seven
- Student prototypes
- A space to test prototypes
- Fake animals

Lesson Eight: Iterate

Outcome:

Students:

- Refine and improve their prototype based on testing and feedback.
- Consider how changes may influence the functionality of their design.
- Reflect on their design process and identify possible future improvements.

Lesson Structure:

Refining the design

- Using feedback from the evaluation lesson, students can revisit their prototypes and consider any changes that could improve how the design works.
- Students can make changes to their design and re-test, making additional adjustments where needed.

Reflecting on improvements

- After students have made changes to their designs and retested, they can then reflect on how the changes improved their designs by answer the following questions in their student planning workbooks:
    - *Did your changes improve how your design worked? If yes, how did it improve your design? If no, why not?*
    - *Is there anything you would do differently next time?*

Documenting final designs

- Students can document their final designs by adding a labelled photo, screenshot or sketch to their student planning workbooks.

Resources:

- Student Workbook – Lesson Eight
- Maker space tools, materials and equipment

  Or
- Computer lab and digital maker space
- Digital camera

  Or
- Coloured pencils for sketching designs

Lessons Nine – Ten: Communicate

Outcome:

Students will:

- Prepare and communicate their final wildlife transport design.
- Explain how their prototype responds to the needs of their chosen animal.

Lesson Structure:

Communication methods

- You might like to begin by discussing methods of communication with students.
    - Possible options can include expo style, posters, reports, videos or presentations.
- You could choose which method you would like your students to complete, or the students can choose how they would like to communicate their designs.

Preparing chosen method of communication

- Students can use their student planning workbook to plan how they will communicate their designs by answering the following questions:
    - *How will you communicate your design?*
    - *What key points would you like to communicate?*
- Ideas that students can communicate can include:
    - How their design works
    - The methods that they used to make their design
    - Any improvements they would make on their design in the future
- Students can begin to plan and make their method of communication.
- Students might need to complete their method of communication at home.

Communicating designs

- In the final lesson of this unit, students can present their designs to the class, school or local wildlife expert using their chosen method of communication.

Additional Teacher notes

- You may like to invite a local wildlife expert, university staff member, scientist or engineer to the school for the students to present their designs to. This can help the students link their designs to real world outcomes.
- If an external guest is unable to attend the students might also like to share their designs via written letters with photos attached, or by sending videos or digital versions of their designs to relevant wildlife organisations.
- Students can also share their designs through the closed Reef Guardian School Educator Network or submit news articles to the Reef Guardian School Portal

Resources:

- Student Workbook – Lesson Nine – Ten
- Student prototypes

Australian Curriculum (ACARA 9.0) curriculum codes

	F	1	2	3	4	5	6	7	8
Technology ACARA V9.0	AC9TDEFP01	AC9TDE2K02 AC9TDE2P01 AC9TDE2P02 AC9TDE2P03	AC9TDE2K02 AC9TDE2P01 AC9TDE2P02 AC9TDE2P03	AC9TDE4K02 AC9TDE4P01 AC9TDE4P02 AC9TDE4P03 AC9TDE4P04	AC9TDE4K02 AC9TDE4P01 AC9TDE4P02 AC9TDE4P03 AC9TDE4P04	AC9TDE6P01 AC9TDE6P02 AC9TDE6P04 AC9TDE6P05	AC9TDE6P01 AC9TDE6P02 AC9TDE6P04 AC9TDE6P05	AC9TDE8K06 AC9TDE8P01 AC9TDE8P02 AC9TDE8P03 AC9TDE8P04	AC9TDE8K06 AC9TDE8P01 AC9TDE8P02 AC9TDE8P03 AC9TDE8P04
Science ACARA V9.0	AC9SFU01 AC9SFU02 AC9SFI02 AC9SFI04 AC9SFI05	AC9S1U01 AC9S1U03 AC9S1I01 AC9S1I05 AC9S1I06	AC9S2U03 AC9S2I05 AC9S2I06	AC9S3H02 AC9S3I02 AC9S3I05 AC9S3I06	AC9S4U03 AC9S4U04 AC9S4I02 AC9S4I05 AC9S4I06	AC9S5U01 AC9S5H02 AC9S5I05 AC9S5I06	AC9S6U01 AC9S6H02 AC9S6I05 AC9S6I06	AC9S7U04 AC9S7H02 AC9S7H04 AC9S7I06 AC9S7I08	AC9S8U05 AC9S8H02 AC9S8I06 AC9S8I07 AC9S8I08

General Capabilities and Cross-Curricula Priorities

- Critical and Creative Thinking – Generating, Analysing and Reflecting
- Sustainability – Connects with Systems (SS1 and SS2), Design (SD1, SD2 and SD3) and Futures (SF2)
- Aboriginal and Torres Strait Islander Histories and Cultures – This unit offers an opportunity to explore the significant connection many Aboriginal and Torres Strait Islander groups have with marine turtles.

Additional Resources and Links

Name	Source	Link
Chelonia mydas (Green Turtle)	IUCN Red List, 2025	Chelonia mydas (Green Turtle)
Green Sea Turtle - habitat map	Kim's Marine Biology	Green Sea Turtle - Kim's Marine Bio
Honey's Release video and photographs	Magnetic Island Network for Turtles – facebook (with permission)	MINT Release video
The Science of Survival Great Barrier Reef Marine Park Authority scientists have partnered with Torres Strait Islander Traditional Owners- helping Green Sea Turtles survive the impacts of climate change. The video below provides an opportunity to hear the voices of Torres Strait Islander custodians as they take up the fight, in collaboration with the Great Barrier Reef Marine Park Authority, to save the Green Sea Turtles of the Torres Strait region.	Great Barrier Reef Marine Park Authority	Green Turtles and the Torres Strait | Protecting a marine icon in the northern Great Barrier Reef (9 minutes)
The Marine Turtle's Journey of Prehistoric Proportions Explore the Great Barrier Reef Green Turtle Research Program's Foraging Ground Population Monitoring Project. Dive into the challenges sea turtles face, including climate change and habitat loss, and highlight the collaborative efforts between scientists and Traditional Owners to ensure the survival of these ancient marine reptiles for generations to come.	Great Barrier Reef Marine Park Authority	The Marine Turtle's Journey of Prehistoric Proportions ft Dr Mark Read (39 minutes)
Turtle Geolocation Learn how turtles are magnetically connected to and can return to their natal (birth) beach, after travelling for an average of a decade over thousands of kilometres.	Reef Guardian School Portal	Turtle Compass | Reef Guardian School
Turtle in Trouble Rescue Inc – Wide Bay Region – photographs (with permission)		Facebook
Anatomy of a Sea Turtle worksheet – Grade 2 – 7	Reef Guardian School Portal	Challenge Activities – Anatomy of a Sea Turtle
Life Cycle of a Sea Turtle Activity – Turtle Life Cycle Wheel – Grade 3	Reef Guardian School Portal	Challenge Activities – Sea Turtle Life Cycle Wheel

Additional Resources and Links cont.

Sea Turtle Life Cycle Comprehension Activity – Grade 3	Reef Guardian School Portal	Challenge Activities – Sea Turtles Life Cycle
How Lucky the Turtle got her name video An introductory puppet show aimed at Prep – year 2 that introduces students to some of the threats that turtles face throughout their life. Including, predators, fishing nets and boat strikes.	Reef Guardian School Portal	How Lucky the Turtle got her name (16 minutes)
How Lucky the Turtle got her name post video challenge activity – Grade Prep – 2	Reef Guardian School Portal	Challenge Activities – How Lucky the Turtle for her name
How Lucky the Turtle got her name Colouring in sheet	Reef Guardian School Portal	How Lucky the Turtle got her name – Colouring in sheet
Turtle Connections Virtual Learning Experience Flyer An information sheet providing an overview of the Great Barrier Reef Marine Park Authorities Turtle Connections Virtual Learning Experience	Reef Guardian School Portal	Turtle Connections Virtual Learning Experience Flyer

Appendix 1: Marking Criteria

Foundation – 'Wildlife Emergency Express' Unit – Marking Criteria

Design and Technologies Pole		Digital Technologies Pole
Created and implemented a well thought out designed solution for a school-selected context. Chose and created design ideas and was able to give an in-depth description of their idea. Accurately followed steps and used materials and equipment to safely make a designed solution.	**A**	With assistance, accessed and used digital systems for a purpose. Used the basic features of common digital tools to create and locate content, following agreed behaviours.
Created a well thought out designed solution for a school-selected context. Chose and created design ideas and was able to give an in-depth description of their idea. Accurately followed steps and used materials and equipment to safely make a designed solution.	**B**	With assistance, accessed digital systems for a purpose. Used the basic features of common digital tools to locate content, following agreed behaviours.
Created a designed solution for a school-selected context. Created, communicated and chose design ideas. Followed steps and used materials and equipment to safely make a designed solution.	**C**	Showed familiarity with digital systems and how to use them.
Attempted a design solution for a school -selected context. Chose and communicated design ideas. Followed some steps, safely using materials and equipment with some support.	**D**	Showed some familiarity with digital systems and how to use them.
Was supported to attempt a design solution for a school -selected context. Chose design ideas and had support to follow some steps. Needed support to safely using materials and equipment with some support.	**E**	Showed some familiarity with digital systems and used them with support.

Student Name: _____ **Class:** _____

Design Grade: _____ **Digital Grade:** _____ **Overall Grade:** _____

Teacher: _____ **Date:** _____

Years 1 and 2 – 'Wildlife Emergency Express' Unit – Marking Criteria

Design and Technologies Pole		Digital Technologies Pole
For a prescribed technology context, gave a comprehensive description of the features and use of technologies and created designed solutions. Selected design ideas with thorough consideration of the preferences of other users. Communicated design ideas using models and annotated drawings and followed sequenced steps to safely produce designed solutions.	**A**	Showed how detailed digital solutions meet a need for known users. Accessed and used digital systems for a purpose. Used many features of common digital tools to create, locate and share content, and to collaborate, following agreed behaviours.
For a prescribed technology context, gave a detailed description of the features and use of technologies and created designed solutions. Selected design ideas with consideration of the preferences of other users. Communicated design ideas using models and simply annotated drawings and followed sequenced steps to safely produce designed solutions.	**B**	Showed how digital solutions meet a need for known users. With some assistance, accessed and used digital systems for a purpose. Used the features of common digital tools to create, locate and share content, and to collaborate, following agreed behaviours.
For a prescribed technology context, described the features and use of technologies and created designed solutions. Selected design ideas based on their personal preferences. Communicated design ideas using models and drawings and follow sequenced steps to safely produce designed solutions.	**C**	Showed how simple digital solutions meet a need for known users. With assistance, accessed and used digital systems for a purpose. Used the basic features of common digital tools to create, locate and share content, and to collaborate, following agreed behaviours.
For a prescribed technology context, described the features and use of technologies and created designed solutions. Selected design ideas based on their personal preferences. Communicated design ideas using models and drawings and follow sequenced steps to safely produce designed solutions.	**D**	Showed how simple digital solutions meet a need for known users. With assistance, accessed and used digital systems for a purpose. Used the basic features of common digital tools to create, locate and share content, and to collaborate, following agreed behaviours.
For a prescribed technology context, described some of the features or uses of technologies and created a simple designed solution. Selected a design idea based on their personal preferences. Communicated design ideas using basic models or drawings and followed sequenced steps to safely produce designed solutions, with support.	**E**	Was supported to show how simple digital solutions meet a need for a known user. With assistance, accessed and used a digital system for a purpose. Used the some of the basic features of common digital tools to create, locate or share content, following agreed behaviours with support.

Student Name: _____ **Class:** _____

Design Grade: _____ **Digital Grade:** _____ **Overall Grade:** _____

Teacher: _____ **Date:** _____

Years 3 and 4 – 'Wildlife Emergency Express' Unit – Marking Criteria

Design and Technologies Pole		Digital Technologies Pole
For a prescribed technology context, gave comprehensive descriptions of the features and uses of technologies and created designed solutions. Selected appropriate design ideas against design criteria. Accurately communicated design ideas using models and drawings including detailed annotations and symbols. Planned and sequenced steps and used technologies and techniques to safely produce purposeful designed solutions.	**A**	Created a complex digital solution and used provided design criteria to check if solutions met user needs. Securely accessed and used a digital system for a purpose. Used the core features of common digital tools to plan, create, locate and share content, and to collaborate, following agreed behaviours.
For a prescribed technology context, gave comprehensive descriptions of the features and uses of technologies and created designed solutions. Selected appropriate design ideas against design criteria. Accurately communicated design ideas using models and drawings including detailed annotations and symbols. Planned and sequenced steps and used technologies and techniques to safely produce purposeful designed solutions.	**B**	Created a digital solution and used provided design criteria to check if solutions met user needs. Securely access and use a digital system for a purpose. Used the core features of common digital tools to plan, create, locate and share content, and to collaborate, following agreed behaviours.
For a prescribed technology context, described the features and uses of technologies and created designed solutions. Selected design ideas against design criteria. Communicated design ideas using models and drawings including annotations and symbols. Planned and sequenced steps and used technologies and techniques to safely produce designed solutions.	**C**	Created a simple, digital solution and used provided design criteria to check if solutions met user needs. Securely accessed and used a digital system for a purpose. Used the core features of common digital tools to plan, create, locate and share content, and to collaborate, following agreed behaviours.
For a prescribed technology context, described some of the features and uses of technologies and created a designed solution. Selected some design ideas against design criteria. Communicated design ideas using basic models and drawings including some annotations and symbols. Planned and sequenced steps and used technologies and techniques to safely produce designed solutions.	**D**	Created a simple digital solution and used provided design criteria to check if solutions met some of the user's needs. Securely access and use digital systems and their peripherals for a range of purposes, including transmitting data. Used the core features of common digital tools to plan, create, locate and share content, and to collaborate, following agreed behaviours.
For a prescribed technology context, described some of the features or uses of technologies and created a designed solution. Selected a design idea against design criteria. Communicated a design idea using basic models or drawings including some annotations or symbols. Planned and sequenced steps and used technologies and techniques to safely produce designed solutions.	**E**	With support, created a simple digital solution and used provided design criteria to check if solutions met some of the user's needs. Securely access and use digital systems and their peripherals for a range of purposes, including transmitting data. Used the core features of common digital tools to plan, create, locate and share content, and to collaborate, following agreed behaviours.

Student Name: _____ **Class:** _____

Design Grade: _____ **Digital Grade:** _____ **Overall Grade:** _____

Teacher: _____ **Date:** _____

Year 5 and 6 – 'Wildlife Emergency Express' Unit – Marking Criteria

Design and Technologies Pole		Digital Technologies Pole
For a prescribed technology context, gave a comprehensive explanation of how the features of technologies impact on design decisions and created designed solutions. Selected and justified advanced design ideas and solutions against design criteria that include sustainability. Communicated design ideas to an audience using technical terms and graphical representation techniques. Developed project plans, including production processes, and selected technologies and techniques to safely produce designed solutions.	**A**	Developed and modified an advanced digital solution, and defined problems and evaluated solutions using design criteria. Selected and used appropriate digital tools effectively to plan, create, locate and share content, and to collaborate, applying agreed conventions and behaviours.
For a prescribed technology context, gave a detailed explanation of how the features of technologies impact on design decisions and created designed solutions. Selected and justified more complex design ideas and solutions against design criteria that include sustainability. Communicated design ideas to an audience using technical terms and graphical representation techniques. Developed project plans, including production processes, and selected technologies and techniques to safely produce designed solutions.	**B**	Developed and modified a complex digital solution, and defined problems and evaluated solutions using design criteria. Selected and used appropriate digital tools effectively to plan, create, locate and share content, and to collaborate, applying agreed conventions and behaviours.
For a prescribed technology context, explained how the features of technologies impact on design decisions and created designed solutions. Selected and justified design ideas and solutions against design criteria that include sustainability. Communicated design ideas to an audience using technical terms and graphical representation techniques. Developed project plans, including production processes, and selected technologies and techniques to safely produce designed solutions.	**C**	Developed and modified a digital solution, and defined problems and evaluated solutions using design criteria. Selected and use appropriate digital tools effectively to plan, create, locate and share content, and to collaborate, applying agreed conventions and behaviours.
For a prescribed technology context, explained how the features of technologies impact on design decisions and created designed solutions. Selected and justified simple design ideas and solutions against design criteria that include sustainability. Communicated design ideas to an audience using some technical terms and graphical representation techniques. Developed simple project plans, including production processes, and selected technologies and techniques to safely produce designed solutions.	**D**	Developed and modified a simple digital solution, and defined problems and evaluated solutions using design criteria. Selected and used appropriate digital tools effectively to plan, create, locate and share content, and to collaborate, applying agreed conventions and behaviours.
For a prescribed technology context, explained how some of the features of technologies impact on design decisions and created designed solutions. Selected and justified simple design ideas and solutions against a design criteria that may have included sustainability. Communicated design ideas to an audience using some technical terms or graphical representation techniques. Developed simple project plans with support, including production processes, and selected technologies and techniques to safely produce designed solutions.	**E**	With support, developed and modified a simple digital solution, and defined problems and evaluated solutions using design criteria. Selected and used appropriate digital tools effectively to plan, create, locate and share content, and to collaborate, applying agreed conventions and behaviours.

Student Name: _____ **Class:** _____

Design Grade: _____ **Digital Grade:** _____ **Overall Grade:** _____

Teacher: _____ **Date:** _____

Year 7 and 8 – 'Wildlife Emergency Express' Unit – Marking Criteria

Design and Technologies Pole		Digital Technologies Pole
For a prescribed technology context, gave a comprehensive explanation of how the features of technologies impact on design decisions, and created designed solutions based on analysis of needs or opportunities. Created and adapted design ideas, processes and solutions, and justified decisions against developed design criteria that included sustainability. Effectively communicated design ideas and solutions to audiences using elaborated technical terms and graphical representation techniques, including using digital tools. Independently and collaboratively documented and managed production processes to safely produce designed solutions.	**A**	Developed and modified comprehensive creative digital solutions, decomposed real-world problems, and evaluated alternative solutions against design criteria. Selected appropriate hardware for particular tasks. Selected and used a range of digital tools efficiently and responsibly to create, locate and share content; and to plan, collaborate on and manage projects.
For a prescribed technology context, gave a detailed explanation of how the features of technologies impact on design decisions, and created designed solutions based on analysis of needs or opportunities. Created and adapted design ideas, processes and solutions, and justified decisions against developed design criteria that included sustainability. Effectively communicated design ideas and solutions to audiences using technical terms and graphical representation techniques, including using digital tools. Independently and collaboratively documented and managed production processes to safely produce designed solutions.	**B**	Developed and modified detailed creative digital solutions, decomposed real-world problems, and evaluated alternative solutions against design criteria. Selected appropriate hardware for particular tasks. Selected and used a range of digital tools efficiently and responsibly to create, locate and share content; and to plan, collaborate on and manage projects.
For a prescribed technology context, explained how the features of technologies impact on design decisions, and created designed solutions based on analysis of needs or opportunities. Created and adapted design ideas, processes and solutions, and justified decisions against developed design criteria that included sustainability. Communicated design ideas and solutions to audiences using technical terms and graphical representation techniques, including using digital tools. Independently and collaboratively documented and managed production processes to safely produce designed solutions.	**C**	Developed and modified creative digital solutions, decomposed real-world problems, and evaluated alternative solutions against design criteria. Selected appropriate hardware for particular tasks. Selected and used a range of digital tools efficiently and responsibly to create, locate and share content; and to plan, collaborate on and manage projects.
For a prescribed technology context, explained how some of the features of technologies impact on design decisions, and created designed solutions based on analysis of needs or opportunities. Created and adapted some design ideas, processes and solutions, and justified decisions against developed design criteria that included sustainability. Communicated design ideas and solutions to audiences using technical terms and graphical representation techniques, including using digital tools. Independently or collaboratively documented and managed production processes to safely produce designed solutions.	**D**	Developed and modified simple creative digital solutions, decomposed real-world problems, and evaluated alternative solutions against design criteria. Selected appropriate hardware for particular tasks. Selected and used a range of digital tools efficiently and responsibly to create, locate and share content; and to plan and manage projects.
For a prescribed technology context, explained how some of the features of technologies impact on design decisions, and created designed solutions based on analysis of needs or opportunities. Created and adapted some design ideas, processes and solutions, and justified decisions against developed design criteria that included sustainability. Communicated design ideas and solutions to audiences using technical terms and graphical representation techniques, including using digital tools. Independently or collaboratively documented and managed production processes to safely produce designed solutions with support.	**E**	With support, developed and modified simple creative digital solutions, decomposed real-world problems, and evaluated alternative solutions against design criteria. Selected appropriate hardware for particular tasks. Selected and used a range of digital tools efficiently and responsibly to create, locate and share content; and to plan and manage projects.

Student Name: _____ **Class:** _____

Design Grade: _____ **Digital Grade:** _____ **Overall Grade:** _____

Teacher: _____ **Date:** _____