

Backward Design Template

Egg Drop Science Assessment

Stage 1 - Desired Results	
Subject- Science	Year Level Four
<p><u>Established Goals (Australian Curriculum):</u></p> <p>Science Understanding</p> <p>Chemical Sciences: Natural and processed materials have a range of physical properties; These properties can influence their use (ACSSU074).</p> <ul style="list-style-type: none"> Describing a range of common materials, such as metals or plastics, and their uses. Selecting materials for uses based on their properties <p>Physical Sciences: Forces can be exerted by one object on another through direct contact from a distance (ACSSU076).</p> <ul style="list-style-type: none"> Investigating the effect of forces on the behaviour of an object through actions such as throwing, dropping, bouncing and rolling. <p>Science Inquiry Skills</p> <p>Questioning and predicting: With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge (ACSI064).</p> <ul style="list-style-type: none"> Reflecting on familiar situations to make predictions with teacher guidance. <p>Planning and conducting: Suggest ways to plan and conduct investigations to find answers to questions (ACSI065).</p> <ul style="list-style-type: none"> Exploring different ways to conduct investigations and connecting these to the types of questions asked with teacher guidance. <p>Processing and analysing data and information: Compare results with predictions, suggesting possible reasons for findings (ACSI216).</p> <ul style="list-style-type: none"> Discussing how well predictions matched results from an investigation and proposing reasons for findings. <p>Evaluating: Reflect on the investigations; including whether a test was fair or not (ACSI068).</p> <ul style="list-style-type: none"> Reflecting on investigations, identifying what went well, what was difficult or didn't work so well, and how well the investigations helped answer the questions. <p>Communicating: Represent and communicate ideas and findings in a variety of ways such as diagrams, physical representations and simple reports (ACSI071).</p> <ul style="list-style-type: none"> Communicating with other students carrying out similar investigations to share experiences and improve investigations skills. <p>ACARA (2011) <i>The Australian Curriculum: Science Year 4</i>. Retrieved October 10, 2011, from www.acara.edu.au</p> <p><u>Understandings: Students will understand that...</u></p> <ul style="list-style-type: none"> Natural and processed materials have a range of physical properties that can influence their use Forces can be effect the behaviour of an object through actions such as throwing. Reflecting on similar situations and prior knowledge is important to make predictions. Predictions made can be different from the findings and it is important to make suggestions on improvements based on observations. <p><u>Specific Learning Outcome Statements</u> (List at least 6 good examples – you don't need to include every statement)</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> <u>Demonstrate</u> a clear understanding of the properties of materials and how they can be used. <u>Describe</u> interactions between objects using contact and non-contact forces. <u>Identify</u> when science is used to ask questions and make predictions. <u>Describe</u> situations where science understanding can influence their own and others' actions. Follow instructions to <u>identify</u> investigable questions about familiar contexts and <u>predict</u> outcomes from investigations. Suggest explanations for observations and <u>compare</u> their findings with their predictions. 	

Stage 2 – Assessment Evidence

Through what summative authentic assessment tasks will students demonstrate the desired understandings?

1. Design and construct a container

- Purpose of the container is to protect a raw egg from breaking when dropped from 3 metres (distance between balcony of classroom to the ground)
- Use a variety of materials possessing different properties (Remembering different properties make certain materials suitable for particular uses)

2. Poster detailing all aspects of the investigation

- Demonstrate scientific understanding of properties
- Detail all of the elements of the investigation (design, draw, predict, record method, conduct, observations, compare predictions to results, reflect)
- Plan the design describing the materials, reason for your choice of materials (based on the properties) and clear diagram that labels all relevant aspect of the container.

Through what formative assessment tasks will students receive feedback to highlight what they have learnt and how they can improve their future performance?

- Students have constructed containers prior to this investigation using different materials for different purposes, including carry an egg in for a day.
- Students have used a variety of materials in class and created a template describing the properties and purpose of each material.
- Students have completed investigations about plants and demonstrated their understanding on posters prior to this investigation.
- Observational checklist- observing students understanding during a whole class experiment with various materials and recorded in a graph (constructed by teacher)
- Students will create poster during class time with guidance from a teacher, only the creating of the container is completed at home.

Stage 3 – The Learning Plan

Identification of activities that scaffold the authentic assessment strategy.

The underlying skills required by the students are:

- Designing skills (using appropriate materials to fit together)
- Constructing skills (Preparing the container efficiently and securely using the appropriate materials)
- How to structure the poster
- Predicting and comparing skills
- How to give feedback to peers
- Computer skills- including typing skills and ability to use Microsoft word.

To ensure the students have these skills I will:

- Provide students with the available laptops to create poster and allow for assistance and guidance using Microsoft word (students have plenty of prior experience using Microsoft word)
- Demonstrate to whole class the ideal poster on the interactive whiteboard to provide students with an understanding.
- Provide examples of designed and constructed containers (successful and unsuccessful designs)
- Make predictions as a class during other experiments and exhibit observation and comparing skills.
- Students will practice giving feedback after observing the teacher's own construction of a container.