



Pre main lesson plan

Topic: Passenger Safety

Year level: 4

Title: Egg Substitute Crash Car

Duration: 60 minutes, construction may take longer



Western Australian Curriculum links

Health and Physical Education

Strand: Personal, Social and Community Health

Sub-strand: Being healthy, safe and active

Content:

Strategies to ensure safety and wellbeing at home and at school

English

Strand: Language

Sub-strand: Language for interaction

Content:

Understand that social interactions influence the way people engage with ideas and respond to others for example when exploring and clarifying the ideas of others, summarising their own views and reporting them to a larger group

Strand: Literacy

Sub-strand: Interacting with others

Content:

Use interaction skills such as acknowledging another's point of view and linking students' response to the topic, using familiar and new vocabulary and a range of vocal effects such as tone, pace, pitch and volume to speak clearly and coherently

Science

Strand: Science Understanding

Sub-strand: Physical Science

Content:

Forces can be exerted by one object on another through direct contact or from a distance

Strand: Science Inquiry Skills

Sub-strand: Questioning and Predicting

Content:

With guidance, identify questions in familiar contexts that can be investigated scientifically and predict what might happen based on prior knowledge



Lesson Objective:

- Students design a functional egg crash car (or if students have allergies to eggs find a substitute to eggs such as a hacky sack, block or miniature figurine)
- Students construct an egg crash car using everyday household items

Materials/Equipment and preparation:

- Pencil
- Scrap paper
- Ramp
- Ask students to bring materials to be used to create a test car such as egg carton, cotton wool balls, paddle pop sticks, wheels, wooden skewers for an axle, rubber bands, glue, masking tape etc.
- Using google images, search 'egg car experiment' and print off (or show using the smartboard)
- iPads/computers for groups to research their egg car designs



Time	Content
5mins	<p>Introduction: <i>In today's lesson we are going to become a scientist. Our aim is to discover if car seatbelts keep passengers and drivers safe. Now it would be a little dangerous to use ourselves as test dummies, so we are going to use an egg/egg substitute as our crash dummy and design and construct a safety egg car.</i></p> <ul style="list-style-type: none"> - <i>What is an egg car you ask? Answer: Well an egg car is simply a car that will carry an egg as the passenger.</i> - <i>You're to design and build an egg car using the household items you have brought in from home. The focus of this activity is to design a car that will safely carry an egg passenger.</i> - <i>We will be testing some of our cars' safety when RAC Community Education comes to visit.</i> <p>Alternatively if RAC are not visiting the students can conduct the egg testing next lesson in class themselves.</p>
50mins	<ol style="list-style-type: none"> 1. Show students' examples of egg cars to inspire creativity (google images). 2. As a class brainstorm the elements of an egg car design. A seat and restraint for the egg passenger is important. <p>Alternatively students could work in groups researching safety features of cars and how the safety features of cars are tested.</p> <ol style="list-style-type: none"> 3. Students are to draw an illustration of the potential egg car, including a list of materials that will be required to build the car. Show students an example (see attached design) of an egg car design. 4. Teacher organises students into groups of 2 or 3. 5. Each group is to analyse and discuss the concepts of each team member's car. Students are to select the best features from each car to include in their ultimate egg car design. 6. Students are to sketch their new car design and label the building materials e.g. glue, tape, blu tac etc. 7. Students are to construct a car using the materials provided. 8. Students are to complete a practice run of the car ensuring that it moves and that it has functioning wheels. 9. If time permits, you can decorate your car using coloured textas or paint. Allow for the paint and glue to dry overnight.
5mins	<p>Conclusion: Discuss with students the safety aspects of their cars. If these cars were to be crash tested with the eggs as passengers, how would they hold up?</p> <p>Remember we will be testing how safe our cars are when the RAC come to visit (or ourselves next lesson if no RAC visit planned).</p>