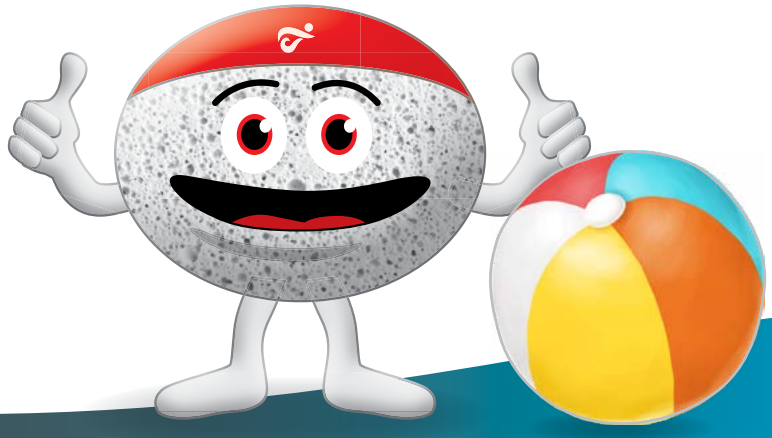
BEACH
WATER SKILLS FOR LIFE

TESTING MATERIALS FOR FLOATATION

MODULE
10



8 LESSONS

LEVEL 1/2

Water Skills for Life

SUPPORTED BY

ACC
He Kaupare. He Manaaki. He Whakaora.
prevention. care. recovery

Water Safety NEW ZEALAND

BEACH
WATER SKILLS FOR LIFE

MODULE 10
LEVEL4

TESTING MATERIALS FOR FLOATATION

DESCRIPTION

Staying afloat in the water can take a lot of energy for people especially for a lengthy time period. Anyone ending up in the water unintentionally can also create panic and confusion. This module aims to help students learn about non traditional floatation devices, including regular household items and how to use them as floatation aides if necessary.

ACHIEVEMENT OBJECTIVES

Level 1
Health and Physical Education

Personal Health and Physical Development

Safety and Risk Management: Students will describe and use safe practices in a range of contexts and identify people who can help.

Movement Concepts and Motor Skills

Challenges and Social and Cultural Factors: Students will participate in games and activities and identify environments where children can play safe.

Healthy Communities and Environment

Community Resources: Students will identify and discuss hazards in their homes, school and local environment and adopt simple safety practices.

Level 2
Health and Physical Education

Personal Health and Physical Development

Safety and Risk Management: Students will identify risk and use safe practices and basic risk-management strategies.

Healthy Communities and Environment

Rights, responsibilities, and law: Students will contribute to and use simple guidelines and practices that promote physically and socially healthy classrooms, schools, and local environments.

MODULE 10 LEVEL4

Level 1 & 2
Science

Nature of Science

Investigating in science

Extend their experiences and personal explanations of the natural world through exploration, play, asking questions, and discussing simple models.

Physical World

Explore everyday examples of physical phenomena...

Seek and describe simple patterns in physical phenomena.

Level 1
Technology

Nature of Technology

Characteristics of technology: Understand that technology is purposeful intervention through design.

Technological Practice

Planning for practice: Outline a general plan to support the development of an outcome, identifying appropriate steps and resources.

Technological Knowledge

Technological modelling: Understand that functional models are used to represent reality and test design concepts and that prototypes are used to test technological outcomes.

Technological products: Understand that technological products are made from materials that have performance properties.

Level 2
Technology

Nature of Technology

Characteristics of technology: Understand that technology both reflects and changes society and the environment and increases people's capability.

Technological Practice

Planning for practice: Develop a plan that identifies the key stages and the resources required to complete an outcome.

Technological Knowledge

Technological modelling: Understand that functional models are used to explore, test, and evaluate design concepts for potential outcomes and that prototyping is used to test a technological outcome for fitness of purpose.

Technological products: Understand that there is a relationship between a material used and its performance properties in a technological product.

LEARNING INTENTION

MODULE 10 LEVEL4

- To predict, test and evaluate the use of everyday objects and materials as floatation aids

SUCCESS CRITERIA

Students can

- practise survival methods in the water
- work within a group to predict, test and evaluate the suitability of regular items as floatation aids
- Understand and demonstrate the 'help' signal
- Responding to the 'help' signal

KEY COMPETENCIES

Participating and Contributing:

- Actively participate in all class and group activities
- Contribute ideas to class and group discussions

Managing Self:

- Manage time effectively to complete work
- Work responsibly within a group

Thinking:

- Think carefully about what items float and why
- Recognise when someone is demonstrating the help signal
- Provide assistance of a flotation device to someone demonstrating the help signal

Using language, text and symbols:

- Write up a plan of action containing pictures and words to create a floatation device

Relating to others:

- Communicate effectively with my group members
- Ask questions and seek help when needed with teacher and peer

RESOURCES

Containers or buckets, everyday materials that sink or float, scientific recording sheet, collection of everyday items for floatation devices (i.e. milk bottles), A3 paper, floatation devices for use in the pool e.g. chilly bins, tyres, large bottles...

WaterSense – a resource for junior class teachers with a range of classroom and in water learning activities, including key messages and learner tasks in Te Reo Māori. Particularly applicable to this module are pages 18, 20, 25 & 26, and Appendix 1 & 5.

ASSESSMENT ACTIVITIES

- Students' predictions and results from Sink or Float activity
- Create a floatation device to help someone or a group stay afloat in the water. Explain why their item was able or unable to float
- Demonstrate the help signal while in the water. Find a flotation aid to assist someone demonstrating the help signal

Aquatic Education in Primary and Intermediate Schools

LESSON 1

Tuning In

Introduction: Explain to the students that they will be learning about everyday items that sink and float. Ask the students: Do you know what sinking means? Do you know what floating means? Can you name some items that you know of that sink/float? Why do you think this happens?

Activity: Sink or Float?

Split the students into groups of 3 or 4 and provide them with a bucket or container (big enough to test whether certain objects sink or float). Provide students with a range of objects that sink or float. Also give the students a scientific group activity sheet divided into four columns and as many rows as there are test objects. Label each column with Object, Prediction, Sink, Float. **Ask the students** to draw a picture of the items they will be testing and then whether they think they will sink or float. **Allow students** to test the items by placing them in the water and observing whether they sink or float. **Ask the students** to tick either sink or float and compare whether their predictions were correct.

Class discussion:

After the activity is complete, **ask** students to share their findings and whether their predictions were mostly correct or incorrect and why they think this happened.

LESSON 2 to 4

Finding Out/ Sorting Out

Class discussion: Revise the previous lessons findings. Ask the students: What items were good at floating? What items were good at sinking? Discuss differences in the weight, size and material of the objects.

Pose the inquiry question: What everyday objects can assist us to stay afloat in the water? Conduct a closely guided inquiry with the students. In the same groups as the initial sink or float activity, ask the students to choose an everyday material that floated to use to create a floatation device that can keep one person/or the whole group afloat in the school pool or on a trip to the beach. Allow the students to choose items or materials even if they are guaranteed to fail as this is part of the learning process.

Possible Materials:

- Plastic (i.e. milk bottles, balls, balloons)
- Rubber (i.e. tyres)
- Cardboard / paper (boxes, newspaper)
- Wood (i.e. tree branches, planks)

Activity: Make a Plan

Ask the students to come up with a plan of action on an A3 sheet of paper considering: what materials they want to use and where they can collect these from, how they can join these items together to make them strong enough to hold one person or the whole group, how they will test their floatation device along the way. Once the plan is complete, ask the students to present it to the class to receive feedback from the other students. **Allow students** time to revise their plan and collect the items they need. Send home a list of materials to parents to help with collecting the necessary items (the items must be free or extremely low cost).

Research:

Allow students to create a prototype of their flotation device for testing. The prototype could be a miniature version of what they think their final design will be. It may take more than one prototype before students are happy with a final design. **Assist** students with ideas for what they can do to improve their floatation device to keep motivation levels high. **Assist** students with researching ideas on the internet concerning their chosen material.

Students organise the materials for their final floatation device.

LESSON 5 to 7

Going Further

Students create their final floatation device using the materials they have collected. Once completed, allow students to test their floatation devices in the school pool or at the beach.

Practice floating techniques (survival methods) using our bodies e.g. on our backs, turtle and mushroom float.

Activity: The 'Help' Signal

Introduce students to the 'help' signal – which is when someone raises one hand straight in the air (not waving) and calls for help if possible. Provide students with a range of other items that can assist them and others to float in the water e.g. chilly bins, pool floaties, empty milk/ juice/water bottles etc. Ask students to buddy up with one in the water demonstrating the help signal and the other providing assistance with a flotation device.

Refer to **Water safety for children** Modules: Stationary surface, flotation and orientation, and Recognising and Assisting Someone in Trouble.'

Drowning Prevention Auckland

Water Safety for Children

LESSON 8

Wrap Up

Whole class discussion: discuss overall learning from students' inquiries. **Discuss** what worked and what didn't and why they think this is. Emphasise the importance of using the 'help' signal when assistance in the water is needed and that everyday materials can be used to assist people to float in the water and that when someone needs help, they can search for materials nearby that can help.

Discuss buoyancy and the reason objects such as large ships and our bodies can float is because the weight of the water displaced is equal to or more than the weight of the item on top creating an upward force of the water which pushes it up. The more water the more likely something will float. The more dense and heavy an item is the less likely it is to float.