

TRIATHLON

Research Project
For Teachers **p2&3**, for Students **p4**

HEALTH AND SAFETY

Students should be encouraged to make their own risk assessment before they carry out any activity, including surveys. In all circumstances this must be checked by a competent person.

For surveys and other activities on open water, the PE department or local water sports clubs may be able to help with risk assessments and ways to avoid risks. Students using specialised equipment should be supervised at all times.

Students may want to set up unorthodox experiments and you may need to seek specialist advice. In particular:

- Any investigations into the actual effect on real people of immersion in cool or cold water must only be done with medical supervision and appropriate medical resources on hand in case of emergency
- Any activity associated with open water will require specialised risk assessment.

Organisations such as CLEAPSS are able to help.

TRIATHLON:

Bronze Research Project - For Teachers

What makes a good wetsuit?

The swimming leg of the 2009 world triathlon championships took place in an outdoor lake in Hyde Park, London. We all know that Britain can be a bit cold, even in the summer. Imagine how cold it must be jumping into a lake with only a swimming costume to keep you warm! That's why, if the water temperature drops below 20°C, triathletes are allowed to wear wetsuits instead of a swimming costume.

HAVE YOU EVER WONDERED?

... how swimming in cold water affects the body, and how a wetsuit helps?

You might like to imagine yourself in a situation such as...

Your swimming club wants to use the park lake. You ask your local Borough Councillors. Although they're keen to encourage healthy and active lifestyles, your local Council members are concerned about the safety of people from a Swimming Club swimming in a park lake. They are trying to decide whether or not to say yes. You have to advise them. You decide to **research information** to...

- find out what temperature the water is likely to be
- find out how these temperatures will affect swimmers
- help you evaluate how safe the swimming would be for strong swimmers who are properly equipped.



POSSIBLE EQUIPMENT, MATERIALS AND RESOURCES

Though primarily a 'theoretical' research project, 1-2 hours could usefully be spent in the laboratory – to illustrate, and explain or clarify, aspects already investigated theoretically.

Access to:

- Equipment for measuring temperature and rate of cooling
- Texts for GCSE (or equivalent) for physics, biology, applied science

Prompts

The Student Brief gives some triggers to start students thinking. They should realise that each trigger implies several items to research and compare. Encourage students to identify these themselves. However, if necessary, prompts such as those below might be given, to point students in suitable directions.

How the temperature of open water varies with time of year or type of water

- How is the cooling effect of being in water different from being in air?

The effect of the length of the time that someone is in cold water

- What is the initial effect of falling or jumping into cold water?
- What are the longer term effects? How long do these take to happen?

The way different people are affected by the same temperature water

- How do size, age and fitness affect what people experience?
- Are there any groups of people who would be affected badly by cold water?

How someone's activity in the water alters the effect of the temperature on them

- Does the body respond differently if you just sit in cold water rather than swimming?
- What symptoms will a swimmer notice if the cold is beginning to affect them?

Other factors about the water, besides temperature, that might affect a swimmer

- In what ways can open water vary?
- Apart from coldness, what other things might make water difficult to swim in?

The use of different types of protective and other safety equipment

- What is the safety advice given for people rescuing those who have fallen into open water?
- What safety advice or safety equipment might make swimming safe when otherwise it would not be?

Suggestions for supporting students

Though primarily based on secondary data, the Research project is likely to provide a more meaningful experience if the student includes some practical work. One possibility is for two students to undertake their projects – one Research, the other Practical – working independently, but coming together, to share mutually useful information and activities.

Although Bronze Award students are not expected to have an official Mentor for their project, access to expert advice makes students feel their work is important. Also, if the topic is not in your area of expertise, you may find a Mentor valuable. Your CREST Local Coordinator may be able to suggest suitable contacts.

Depending upon the research undertaken, someone with knowledge and/or experience of water sports and related safety issues would be ideal:

- medical or emergency services with experience of, for instance,
 - rescue of people from water
 - treatment of drowning or hypothermia
- water sports or water safety training
- development or trialling of equipment related to water safety
- health and safety and risk assessment

Discuss with students how they will manage their time (after school clubs, working during lunch hours, homework). Agree a completion date with them.

Students should decide their focus, although this may alter in the light of experience as the project progresses.



Internet search

Combine 'swimming' with terms such as: cold water, open water, triathlon, safety, hypothermia, or wetsuit. Or try:

- Cold water survival
ussartf.org/cold_water_survival.htm
- Tips on swimming in open water
[youtube.com/watch?v=6vbPNfwcHaQ](https://www.youtube.com/watch?v=6vbPNfwcHaQ)
- Preventing hypothermia
www.nhs.uk/conditions/hypothermia/pages/prevention.aspx
- How different people respond to cold water
scuba-doc.com/coldacclim.html
- What happens during hypothermia, and how to avoid it.
adventure.howstuffworks.com/how-to-avoid-hypothermia.htm

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Some things to think about...

- Where to find sources of information?
- How to effectively search for information on the internet
- Evaluating sources of information
- How the temperature of open water varies with time of year or type of water
- The effect of the length of the time that someone is in cold water
- The way different people are affected by the same water temperature
- How someone's activity in the water alters the effect of the temperature on them
- Other factors about the water, besides temperature, that might affect a swimmer
- The use of different types of protective and other safety equipment

Health and Safety

Should you decide to carry out any experiment or practical activity:

- (a) find out if any of the substances, equipment or procedures are hazardous
- (b) assess the risks (think about what could go wrong and how serious it might be)
- (c) decide what you need to do to reduce any risks (such as wearing personal protective equipment, knowing how to deal with emergencies and so on)
- (d) make sure your teacher agrees with your plan and risk assessment

NOTE:

1. Your teacher will check your risk assessment against that of your school. If no risk assessment exists for the activity, your teacher may need to obtain special advice. This may take some time.
2. Investigations into the effect of immersing real people in cold water can only be done with medical supervision and appropriate medical resources on hand in case of emergency. It is unlikely that your school could arrange for these.