

Buckden House

OEC

Visiting Staff

Problem

Solving Tasks

# Introduction

## Problem solving and building working teams

This collection of tasks is designed to help your students develop their teamwork, leadership, planning, logical thinking and general problem solving skills.

## Structuring a Session

When leading your problem solving session try to relate the session to everyday life for your students. This will help them to understand the importance of the session. Things such as planning homework or changing a tyre on the bike are all aspects of problems that can occur in everyday life. Therefore, if you can give your students positive experiences when in this controlled environment they will be able to relate these to life's little problems - experienced in a less benign environment!

A good way to structure each problem is:

- Explain initially what the problem is and what are the rules / parameters / safety issues.
- Allow your students to touch all the equipment and come up with a way to complete the task.
- One person must then volunteer to explain their plan to you; this is so you have an understanding of what they are going to be doing. Why not choose a quiet or withdrawn pupil to explain, to accentuate that all members of the group need to participate? Remember that younger children learn more quickly from succeeding, so some guidance may be appropriate
- Allow them to undertake the task. Only let the problem go on for longer than 15 minutes if you feel that students are still benefiting. To stay in this time it may be necessary to give your students hints/tips during the activity.
- After completing the task it is good practice to review what went on. This can be just a few minutes of asking how people felt during the activity or how well they thought the group did.

## How to use this booklet

This booklet will guide you through the problem solving tasks. You may have seen some of them before so if you have an alternative way of doing things then please feel free to discuss your way with an instructor, and go ahead if they are happy.

The booklet is laid out in the following manner:

**Problem:** this bit describes what the problem is.

**The Task:** this section describes what the actual task is, any special considerations that need to be taken into account and any rules particular to that task.

**Equipment:** this is a list of equipment that you will need for the task.

**Lay Out:** if any equipment is to be used in a particular way then there will either be a picture or diagram that will show the correct method for this.

**Changes:** if your students would like to have another go at the task but you want to vary it then this will give you ideas on how to go about this.

**Hazard:** particular problems associated with each task; both if done correctly and not so correctly!

**Indoor Variation:** if you need to bring the problem inside for whatever reason then this will describe how best to do this. NB this can not be done with some tasks.

**Scoring:** this will suggest the most appropriate way to score the task. With almost all the scoring it will require you to award discretionary points, feel free to do this.

## **Risk Assessment**

As with any other instructor you are responsible to the Head of Centre for the safety and good conduct of your group for the duration of the session. If faced with a situation not otherwise covered by this document, use common sense and err on the side of caution.

Staff Competency:

The leader of these activities will be expected to have experience of working with similar groups, to have read and proved understanding of this document, and to have gained approval from the head of centre or designated other.

### **Hazard**

Stream in grounds  
Traffic in grounds  
Environmental hazards

### **Action taken by group leader**

Avoidance, awareness of location of group members  
Awareness of hazard, avoidance, group control  
Dress for the season. Most activities are quite static, therefore wrapping up warm is normally a good idea. Long sleeves and trousers also guard against insect bites and sunburn in the sunnier months.

Slips and trips

There is nothing wrong with children running about in a safe environment, but kerbs and equipment are hazards that need identifying to your students

Students running away

They can disappear into toilets, the village, in trees... know how many there are in your group, and where they all are. Never leave a group unsupervised if you can help it. If they look tired or are losing interest / patience, change the activity or take a break.

Hazards particular to each activity

These are detailed in the page particular to each task.

# Safe Circles

## Problem:

Your team must cross the river of shark-infested custard, using only the equipment specified.

## The Task:

Your team has to cross from one side of the river to the other using the safe circles, which will float on the custard and are shark proof. All of your team must get to the other side but no is allowed to touch the custard. If anyone should touch the custard then the whole team must return the start.

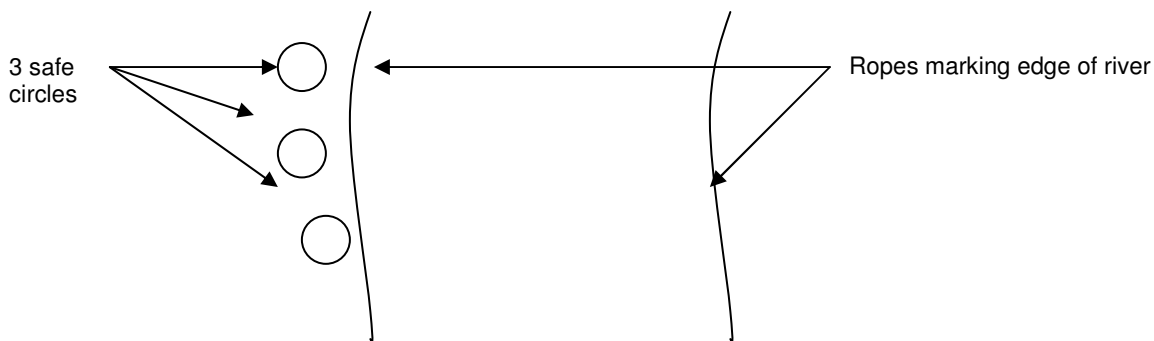
## Equipment:

Three blue barrel ends (or milk crates)

Two ropes to mark out the boundaries of the custard (cones will also do)

## Lay Out:

You will need to mark out the edges of the custard using two pieces of rope roughly 4 metres apart, and the team will need to start at one side.



## Changes:

Some, or all of, the group could be blindfolded

## Hazards specific to task

The barrels or crates must be placed, not thrown - avoiding students being hit by equipment

## Bad Weather Variation:

This can take place in the lounge or stables

## Scoring:

Points can be awarded for speed or for the least number of ground touches or the least number of tyre moves. For example, every time a tyre moves or someone touches the ground one point is lost from your maximum of ten.

# Dragonfly

**Problem:**

Your team has to get the other team's tail. This is a short 'fill in' task which shows how teams must work together to succeed.

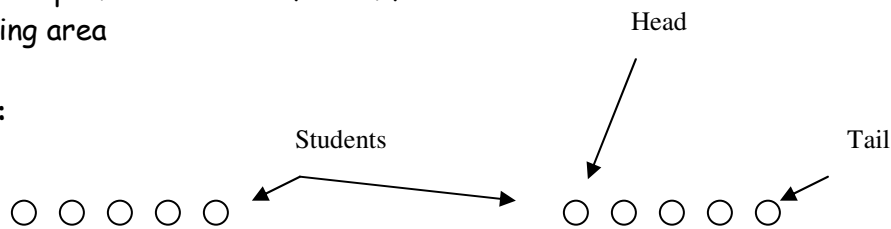
**The Task:**

Split your group into two teams and get each team to line up behind each other in much the same way as the conga. Then get the last person in each team to place a small knotted rope into their trousers/shorts/belt. The main aim is to retrieve the tail from the opposing team, however only the 'head' of the dragonfly is allowed to remove the tail.

**Equipment:**

2 knotted ropes/ handkerchiefs etc. for the tails  
Flat playing area

**Lay Out:**



**Changes:**

Increase the number of players in a team by encouraging other groups to join in!  
Blindfold the head of the dragonfly then the rest of the team has to guide them to the opposing tail

**Hazards Specific to Task**

General mayhem...you must ensure that the area is large and clear of obstacles, do not allow teams to stray from an area specified beforehand. Watch out for bad temper in the teams. Like any other fast-moving game, tumbles are likely, and good footwear reduces slips

**Bad Weather Variations:**

Needs a big empty room indoors!

**Scoring:**

Self explanatory. Best out of ten, or first to reach six?

# Skis

## Problem:

Your students have to follow a set course using the equipment provided, without touching the ground. This task will help your students with their co-ordination and their ability to work in a group.

## The task:

Race against another team and complete the course. No one is allowed to touch the ground. If they do then the team has to return to the start or have a time penalty. To facilitate success with this problem allow your students to have a go at moving forwards, backwards, sideways and turning around. This will give them the experience to complete the course.

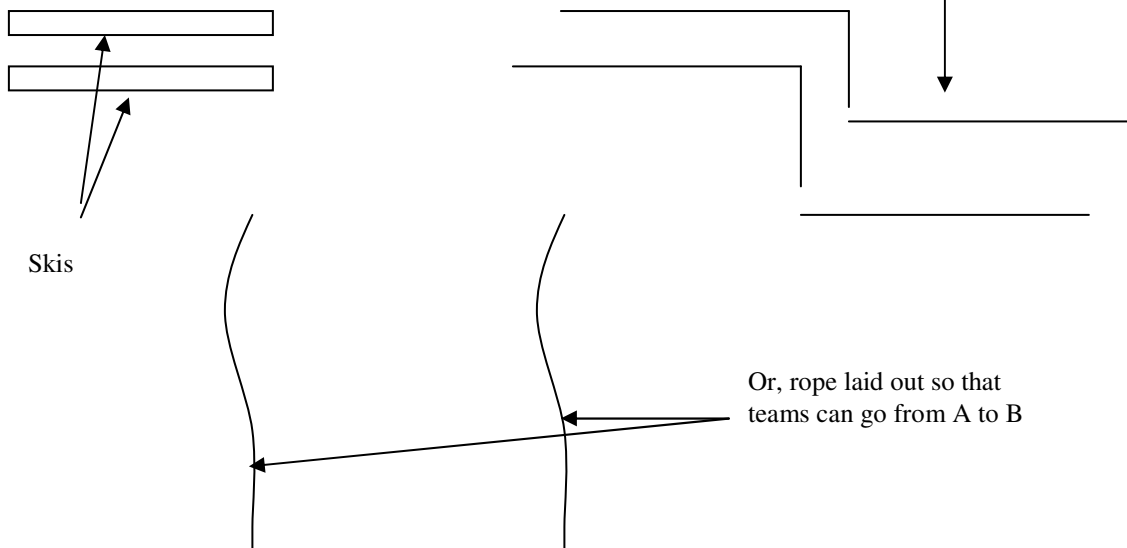
## Equipment:

2 or more sets of skis (planks with rope or chain handles) for teams

Lengths of rope for marking out the course, or cones

Burdens (see changes below)

## Lay Out:



## Changes:

You could make teams do it in silence, or blindfolded

Give each team a bucket of water to carry along the course

## Indoor Variation:

Sorry, but this can not be done indoors!

## Hazards Specific to Task

Planks dropped on feet, swung into legs. Wearing boots helps protect; but group control is best!

# Shepherd and Sheep

## Problem:

The shepherd has to get all of her sheep into the pen. This problem will help your students develop alternative methods of communication.

## The Task:

The shepherd's sheep have escaped from their pen and have become separated from each other. The task of the shepherd is to use the equipment provided (wooden spoon and pot), to gather all his/her sheep together and get them into the pen. All the sheep need to be blindfolded so that they can be guided in without the use of their sight. The sheep can only enter through the opening in the pen they cannot jump the fence!

## Equipment:

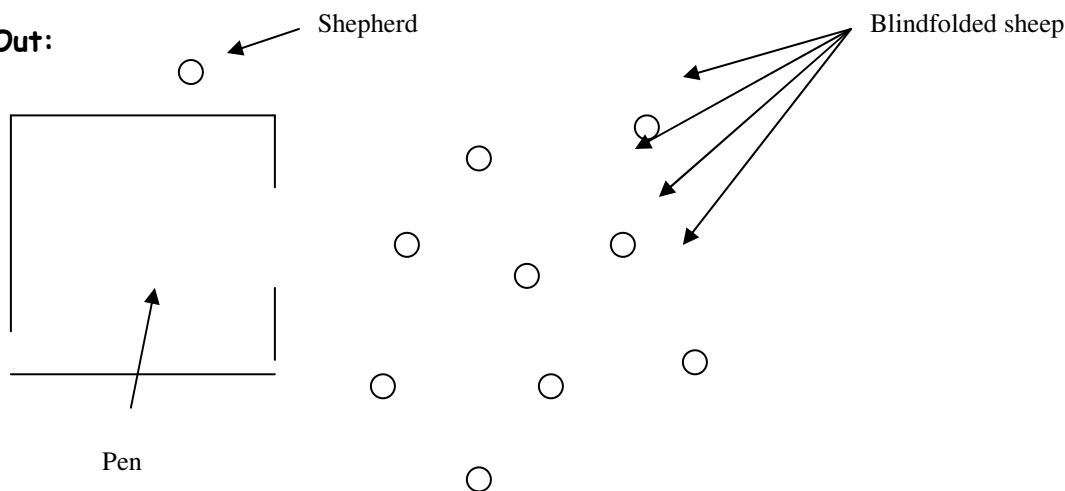
Wooden spoon (or similar)

Pot

The pen (marked with rope, tape, or a particular location)

Blindfolds for the sheep

## Lay Out:



## Changes:

Sheep can be placed further away from, or behind, the pen. Objects between sheep and pen.

## Hazards Specific to Task

Collisions are unavoidable! 'Sheep' must move slowly; choose an area free of trip hazards, cars etc.

## Indoor Variation:

This can be played indoors if the area is cleared and you have the pen marked out.

## Scoring:

Scoring can be done on a timed basis so that up 3 minutes scores 8 points, 5 minutes 6 points, 7 minutes 4 points and up 10 minutes 2 points. This will leave you room for discretionary points should you feel they are necessary.

# Blindfold Shapes

## **Problem:**

To make the rope into a perfect square, triangle etc., while blindfolded. This task will help your students gain an idea of area, size and shapes.

## **The Task:**

You may choose to join the end of the rope together to create a loop of rope. Then blindfold all of your students and give them a piece of the rope. They now have to work to make the rope into the perfect square.

## **Equipment:**

Length of rope

Blindfolds

2<sup>nd</sup> rope if having a competition

## **Lay Out:**

The rope is best placed on the ground or placed into your students' hands. Be sure that there are no knots in the rope as this may confuse your students.

## **Changes:**

Use a second rope and have a competition

Allow half of the group to watch and get them to comment on the other team (did they look organised? Did anyone have a role? Was there any structure?)

## **Hazards Specific to Task**

Silliness with rope can lead to rope burns, trips, lynching etc. Keep control!

## **Indoor Variation:**

This game can be played indoors, just be sure that there is nothing that your students can trip over.

## **Scoring:**

Scoring for this activity is completely discretionary. Think about how well the team worked together. Did they communicate well? Did they have fun? Have they improved upon their previous performances in other tasks?

# Get Knotted / Sticky Rope

## Problem:

The task is to tie a simple knot in the rope, with all the team involved,. This task will help your students to develop their general problem solving skills along with their leadership and team working skills.

## The Task:

To tie the same knot in the length of rope, as that which is on the board. You will need to show your students the knotted board so that they have an idea of the knot that they are about to tie. Tell them that as soon as they touch the rope their hands will become stuck, so that they cannot let go, or move along its length. They then have to tie the knot.

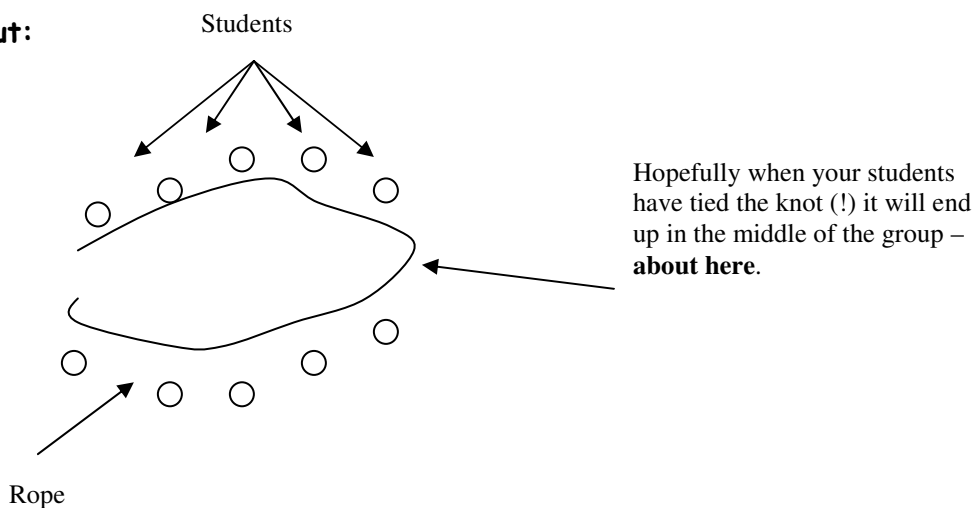
## Equipment:

Rope board illustrating knots

Length of rope

2<sup>nd</sup> rope for competition

## Lay Out:



## Changes:

Knots increase in complexity

Teams compete in a race to tie the same knot

## Hazards Specific to Task

Only those associated with groups in general; if the rope is held tight it presents little extra hazard

## Indoor Variation:

This game can be played indoors with the same rules.

## Scoring:

Success or failure within a set time

# Rat Run

## Problem:

Make the rat run along the guttering. This task is virtually impossible unless the team works together, therefore the aim is teamwork!

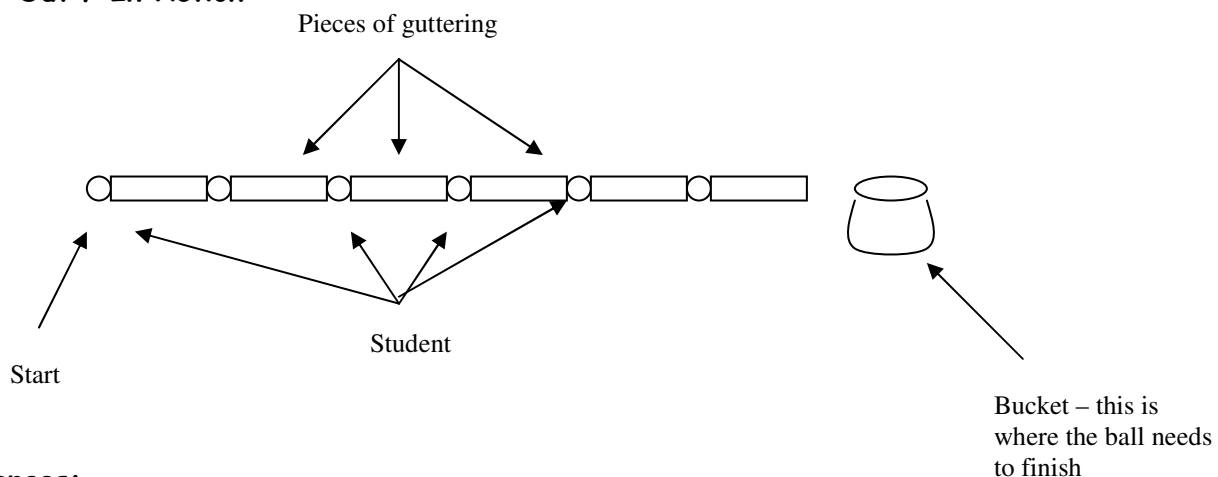
## The Task:

To move the tennis ball along the guttering without anyone touching the ball (apart from at the start) and all the guttering being used, and eventually get it into the bucket at the end.

## Equipment:

Cones to mark out the course of the run  
Several lengths of guttering  
A tennis ball (or more for competitions)  
Bucket  
Blindfolds (harder variant)

## Lay Out / In Action:



## Changes:

Add an extra ball  
Blindfold some of the team so that the rest of the group has to work around them  
Use the extra ball to see how people work when under pressure

## Hazards Specific to task

Students may collide with guttering. No guttering to be held higher than shoulder level. General care should be taken with running while holding hard objects.

## Indoor Variation:

This can be undertaken in the house without problem.

## Scoring:

Start with a maximum of 10 points and every time the ball is dropped lose 1 point.  
See how many times that the ball can be got along the course and into the bucket in 3 minutes.

# Cross the Raging River

## Problem:

Get from one side of the raging river to the other. Your students will need to plan and think logically about how they are to cross the river.

## The Task:

All the team, and equipment, must cross the river, using only the equipment described. Only crates can go 'in the river', anything else touching the ground returns to the start line.

## Equipment:

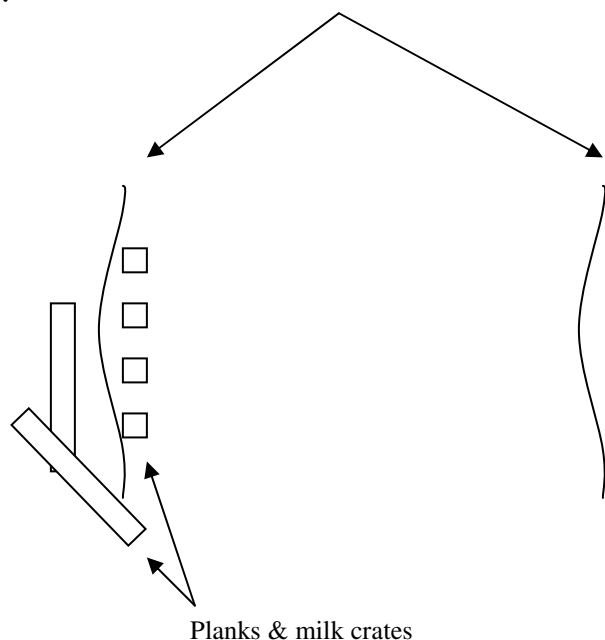
2 thick planks

4 milk crates or similar

2 short ropes to mark out the river banks, or pick an appropriate venue, or cones

## Lay Out:

Ropes to mark river edge – approx 10m apart



## Changes:

You could take one crate away from the team

Give them a burden to carry e.g. a bucket of water (take one from another problem)

## Hazards Specific to Task

Planks collide with students. Specify a minimum number to carry heavy equipment. No throwing.

## Indoor Variation:

Possible with clean kit, but no buckets of water please!

## Scoring:

Scoring can be done on the teams overall achievement, or against a set time

# Global Warming

## Problem:

Move from one set of 'islands' to another - and on again, skill allowing. This task has general problem solving skills along with teamwork and leadership development

## The Task:

As global warming takes hold of the world mainland Britain and Ireland are flooding. So the team has to move to Australia. From the start line, nothing can touch the intervening oceans; people falling in go back to the start. Note that the 'T Piece' is the key to success here - as shown

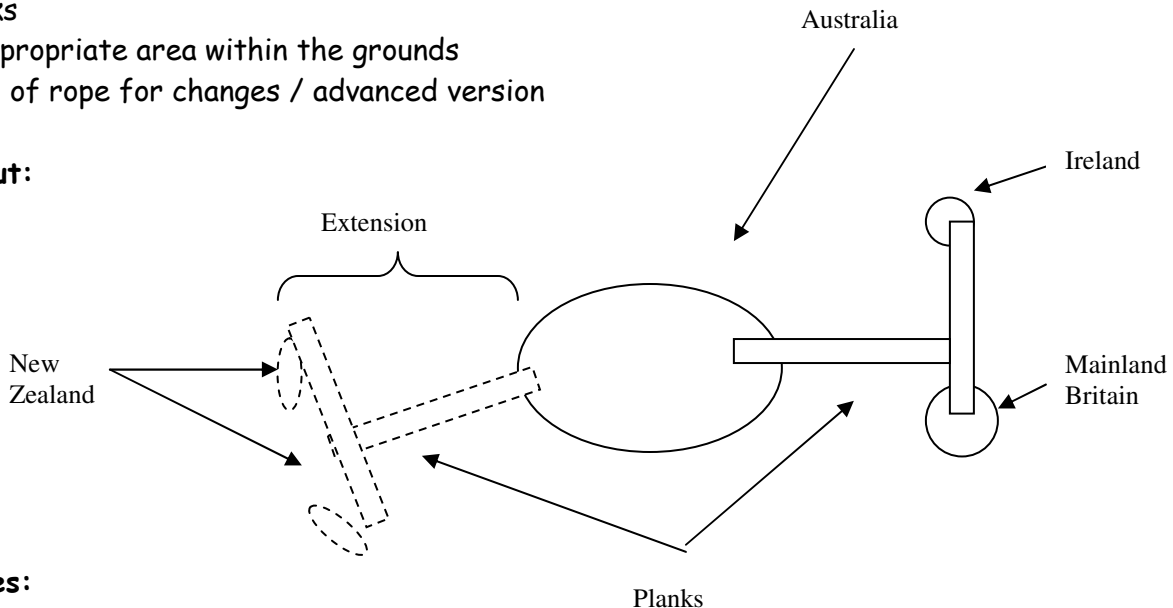
## Equipment:

2 planks

The appropriate area within the grounds

Length of rope for changes / advanced version

## Lay Out:



## Changes:

Equipment has to be recovered to Australia

Move on to New Zealand (involves counterbalancing to make the T piece, hard)

## Hazards Specific to Task

Heavy planks are being moved here. Minimum numbers to hold the long plank, to avoid it being dropped. Wearing helmets may be appropriate if the group is at all 'clumsy'

## Scoring:

The best way to score this task is to simply award points for success.

# Global Warming Part II

## Problem:

A designated area - a set of eight mats - is reduced (by removing mats at set intervals). The entire team must fit onto the designated area despite the lack of space. This is a test of teamwork, mutual support, and agility.

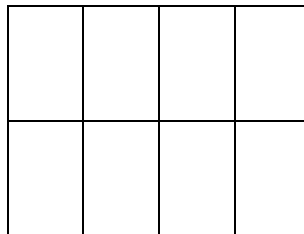
## The Task:

Global warming causes the oceans to rise, leaving less land on which the earth's population can fit. The entire team must fit itself onto the shrinking island for as long as possible. Every few minutes the island will reduce in size; the team may paddle round the edges as the island shrinks, but after a specified time everyone must be back on dry land again.

## Equipment:

Eight mats of equal size

## Lay Out:



## Changes:

Start with a greater or smaller number of mats, depending upon the size of the team. Vary the time allowed to fit all team members back on the remaining mats.

## Hazards Specific to Task:

The only significant hazard is that of tumbles as the amount of space is reduced. It is best to use a soft surface for this task. If using 'lean back with linked arms' or 'human pyramid' techniques in later stages, be close to provide help and physical support as required.

## Indoor Variation:

If the mats are clean, this task may easily be undertaken in a large, carpeted area - as long as all furniture is moved out of the way.

## Scoring:

Either relate points to the smallest number of mats required to hold the entire team, or, for more capable groups, the time taken to fit everyone on one / two mats for one minute.

# Spider's Web

## Problem:

Escape through the spiders web without getting caught. This task will involve teamwork, leadership and planning.

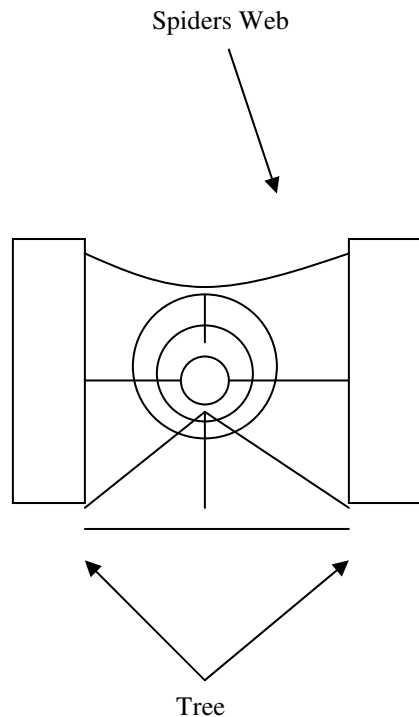
## The Task:

Your team is being chased by some killer flies, called midges. Your students need to pass through the spider's web without touching any part of it with their bodies. All holes can only be used once. Should the web be touched at any point then the person who touched must return to the start - and the hole cannot be used again.

## Equipment:

Spider's Web  
Forward planning

## Layout:



## Changes:

Put some holes out of bounds (lowest ones)  
Use the 'sticky model' (!) - ask an instructor.

## Indoor Variation:

As this task is well sheltered it can be undertaken outside.

## Hazards Specific to Task

No climbing trees. When students are passed through, *personally* ensure head support

## Scoring:

A timed event, or award points related to the lowest number of holes needed

# Nightline

## Problem:

To be guided around the course by a sighted companion, while you are blindfolded. This task will involve students working in pairs and they will need to rely upon each other for their safety and guidance. It will develop communication and trust between the groups.

## The Task:

Pair up all your students and give each pair a blindfold. Join them together with the paired belts. One of the pair will need to place the blindfold on, this person then needs to hold onto the nightline and can not let go until the end. The sighted person then needs to guide them around the course giving as much information as possible - where to put their feet, what is in front of them, to the side, and so on. Swap blindfolds round at your discretion.

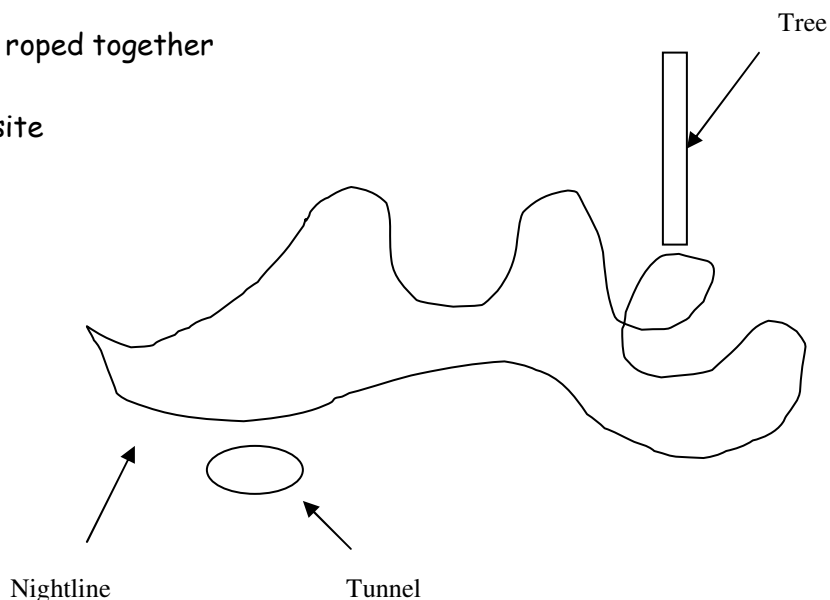
## Equipment:

Nightline

Blindfolds

Pairs of belts roped together

Lay Out: on site



## Changes:

Two blindfolded to one sighted for more difficulty, the other way round for greater ease.

## Hazards Specific to Task

Head injuries and trips are a problem with a thoughtless group. Wear helmets if in doubt - and stop the session if you are not happy with the standard of care displayed.

## Indoor Variation:

This problem is well sheltered so can be continued outside

## Scoring:

Award points for team-work

# Electric Fence

## Problem:

Cross over the electric fence without being electrocuted. This will develop your student's general problem solving skills, team work, physical agility, and communication.

## The Task:

The group will be inside the electric fenced area and they will have to make their way over the fence. Plank is to be used to help students over the fence. Neither the group, nor any of the equipment, is allowed to touch the fence. Once someone is over the fence they can continue to help.

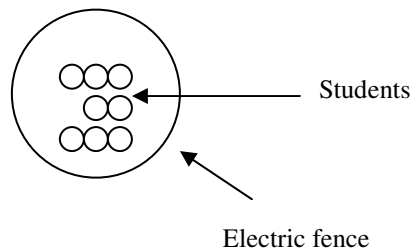
## Equipment:

Electric Fence on site

Plank

Rope (optional, to recover plank, depending upon group ability)

**Lay Out:** (plank inside fence also)



## Changes:

Leave the plank behind; or recover it, either using the rope or else not.

## Hazards Specific to Task

Children may fall off plank as it is used to lift them over the fence. Care needed in the process, support the plank if in doubt as to the team's ability. Also, as with all team challenges using heavy equipment, ensure that enough students are supporting it, and being sensible, as it is moved about. Do not allow students to climb trees to jump over fence!

## Indoor Variation:

There is no indoor variation for this task.

## Scoring:

Score teams on their level of success and their ability to work as a coherent team.

The task may be timed; points awarded for over- or under-running a set time; or inter-team ranking.

# Flash Flood

## Problem:

Using specified trees and the two ropes provided, the entire team must be a minimum height off the ground (generally a metre will suffice), after a set period of preparation time. The students must remain off the ground for a period previously specified.

## The Task:

In ten minutes' time, a flash flood one metre deep will run through this area, in a catastrophe lasting precisely one minute. The task is that the team must survive, by being over a metre off the ground in ten minutes' time. You may use the two ropes provided, and these trees that the ropes may be tied to. No-one may climb more than two metres above the ground; and they may only climb to fix ropes.

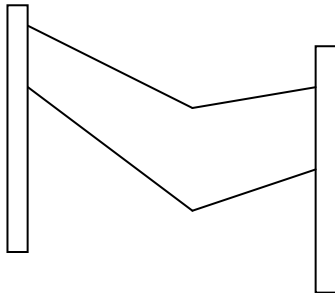
## Equipment:

Trees -at least two, you must specify which

Two stout ropes

A watch for close time keeping

## Lay Out:



## Changes:

You may tie one, some, or all of the knots for the group. Different venues are more or less difficult - trees close together, with stout branches at head-height and below, are easy; trees far apart with high, or no branches, are harder to use effectively. Shorter times available to make the support, or larger teams, also increase the difficulty.

## Hazards Specific to Task:

Rope burns while handling ropes; so cover flesh in hot weather, and avoid silly behaviour! Falls may happen; so keeps ropes low, and avoid nasty landings - raised tree roots, large rocks, or concrete.

## Indoor Variation:

The beams in the Stables are a possibility - and quite a challenge!