

# Body maths

Keep healthy and learn how to measure your heart rate during rest and exercise

**T**he heart beats an incredible 2.5 billion times over an average person's lifetime. Keeping fit is essential for heart health, but how can you figure out what kind of exercise is the best?

The activity you choose to keep fit should elevate your heart rate and the way to do this is by exercising for at least 30 minutes several times a week. To work out your maximum heart rate, take 220 beats per minute, which is an adult's maximum heart rate, and minus your age (if under 18). So a 10-year-old's maximum exercise heart rate should be 210 and a 16-year-old's should be 204. With exercise, the aim is to achieve a target heart rate of between 50-85% of your maximum heart rate.



## Take your pulse

Use the first two fingers of one hand to feel the pulse on the opposite wrist, just below the thumb.

## Suitable for Cubs, Scouts, Explorers and Network

### You will need

- paper
- pens or pencils
- timer
- calculator

### Instructions

**1** Plan a hike with your young people, with the aim of measuring heart rates. They should identify areas on the route suitable for them to skip, jog on the spot or do star jumps, to see how their resting heart rate compares with their target exercise heart rate.

**2** Suggest that they practise finding their pulse, using the first two fingers of one hand to feel the pulse on the opposite wrist, just below the thumb (see diagram on opposite page). To measure the resting heart rate, take your pulse while you are relaxed and sitting down, for example, before the hike begins. Take the number of beats you count in 10 seconds and multiply them by six. Ask the young people to write this figure down on a piece of paper.

**3** At the chosen points on the route, assign appropriate exercise for an allotted time, for example, 10 minutes of running on the spot. At the same time, get the young people to check their pulse rates after one, two and five minutes of activity, and at the end. Just count the number of beats in 10 seconds then multiply by six. Ask them to write down each of the results.

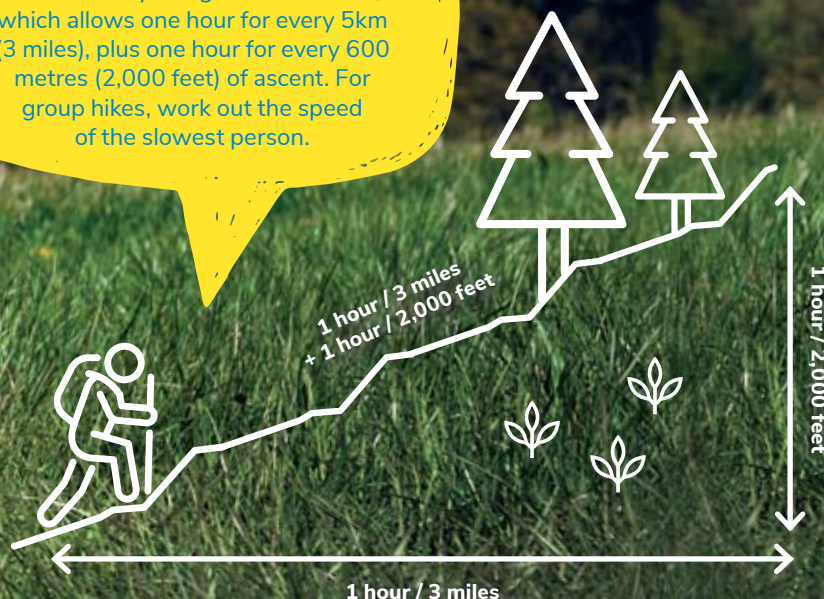
**4** At the next stopping point on the route, encourage the young people to choose a different exercise and repeat the process, stopping to measure their pulses and record the results again.

**5** Also, ask them to measure their pulses after each stage of the hike and see how they compare with the pulse rates at the start of the hike, during the middle and at the end.

**6** When the hike is finished, ask the group to compare the results and see which exercise produced a higher heart rate. You will find that 10 minutes of hiking, which is moderate exercise, results in a lower heart rate, while a burst of star jumps will increase the heart rate because it is more intense.

### Naismith's rule

Plan a hike by using Naismith's rule, which allows one hour for every 5km (3 miles), plus one hour for every 600 metres (2,000 feet) of ascent. For group hikes, work out the speed of the slowest person.



## Time needed 60 minutes

### Badge



GO Outdoors partners the Hikes Away Staged Activity Badge

### Partner



### Outcomes

Planning a hike around other forms of exercise to measure and compare heart rate will reveal the science behind exercise and show which forms of exercise are best to keep your heart healthy. By recording their results, young people will see that different activities affect heart rate differently. The activity shows that a short burst of vigorous exercise bumps up the heart rate, whereas they would have to do moderate exercise, such as walking, for a longer time to achieve the same result.

### Taking it further

Ask the young people to compare heart rates with others in the group to see how they vary from person to person and between people of different ages.

### More information

GO Outdoors is supporting Scouts of all ages in achieving the Hikes Away and Nights Away Staged Activity Badges, by providing downloadable resources, in-store activities and much more to prepare them for adventures. To find out more about GO Outdoors, visit: [scouts.org.uk/gooutdoors](https://scouts.org.uk/gooutdoors).

More information about running a hike and hillwalking can be found here: [scouts.org.uk/a-z](https://scouts.org.uk/a-z).

