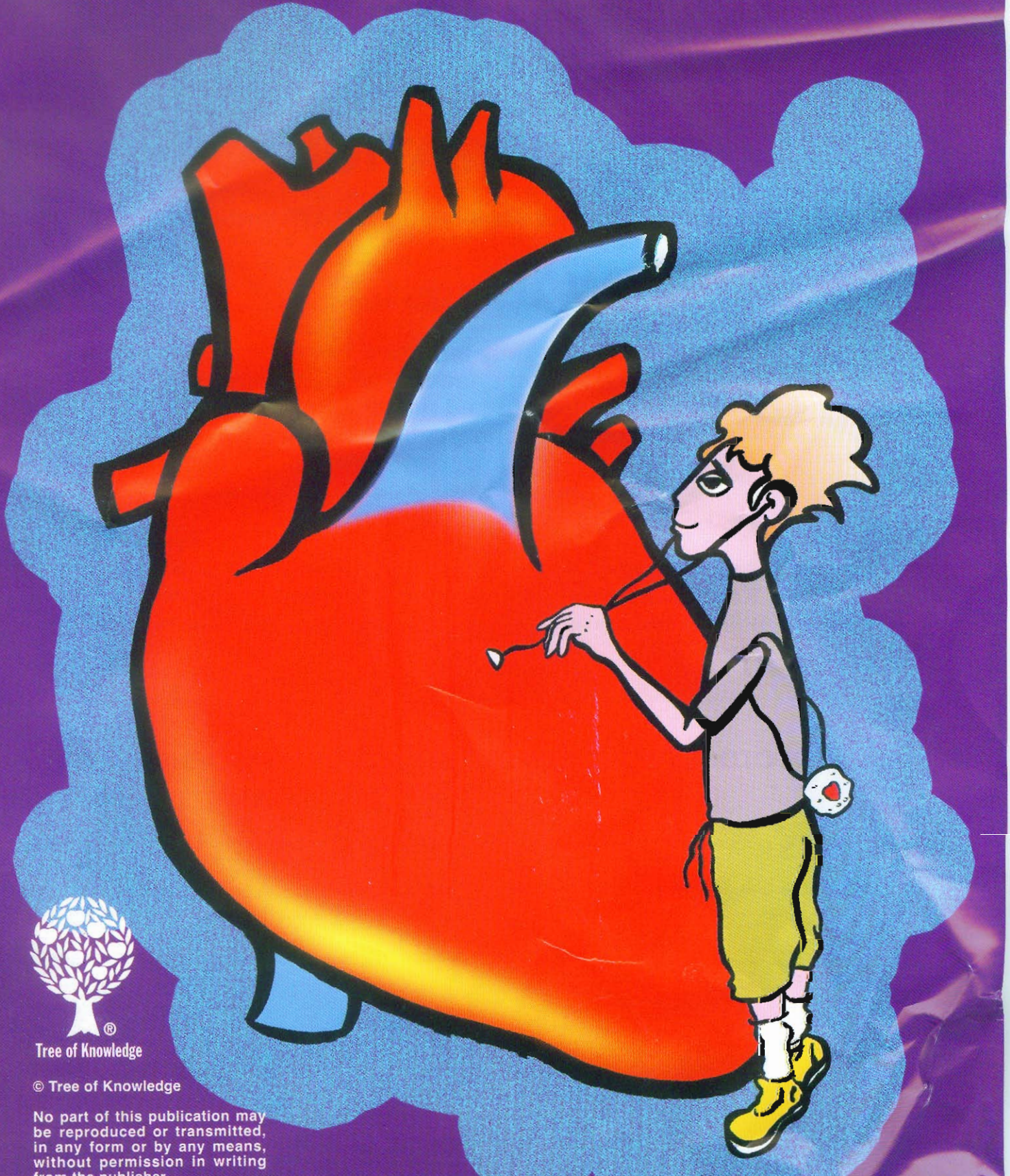
Heart Beat Book

How to keep fit!



Tree of Knowledge

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INFORMATION

The Heart Simulator requires 3 x GP.A76 batteries.

WARNINGS

Use only batteries.
Never use any other source of electricity.
Do not mix old and new batteries.
Do not use rechargeable batteries.

CAUTION

Only for children over 8 years of age and under adult supervision.
Keep away from children under 3 years of age.
Read instructions before use, follow them and keep them for reference.

DOCTORS PHONE NUMBER IN CASE OF EMERGENCY

HEARTBEAT

PARTS LIST

Heart Simulator
Skipping rope
Stethoscope
Stop watch
Pedometer

Plastic funnel
Plastic tubing
3 way plug
Ear pieces
Manual

INTRODUCTION

In this kit we will explain to you the importance of keeping fit and how it affects your heart and body and how by exercising, you can improve your health, well-being and fitness.
Exercise is good for us: we hear this all the time, but do you know why!
Exercise keeps our bodies in good working order. It keeps our heart healthy, our muscles strong and our bodies flexible. It also makes us feel good about ourselves and keeps us focused.
We usually connect the word exercise with sport, but this is only part of it.
Any physical activity is good for us: running, dancing, ice skating and bike riding.
When you start to exercise, you should always take it slowly and increase your activity at a gradual pace as your body has to get used to exercise and has to adapt to your new lifestyle.
So, take it easy and enjoy HEARTBEAT.

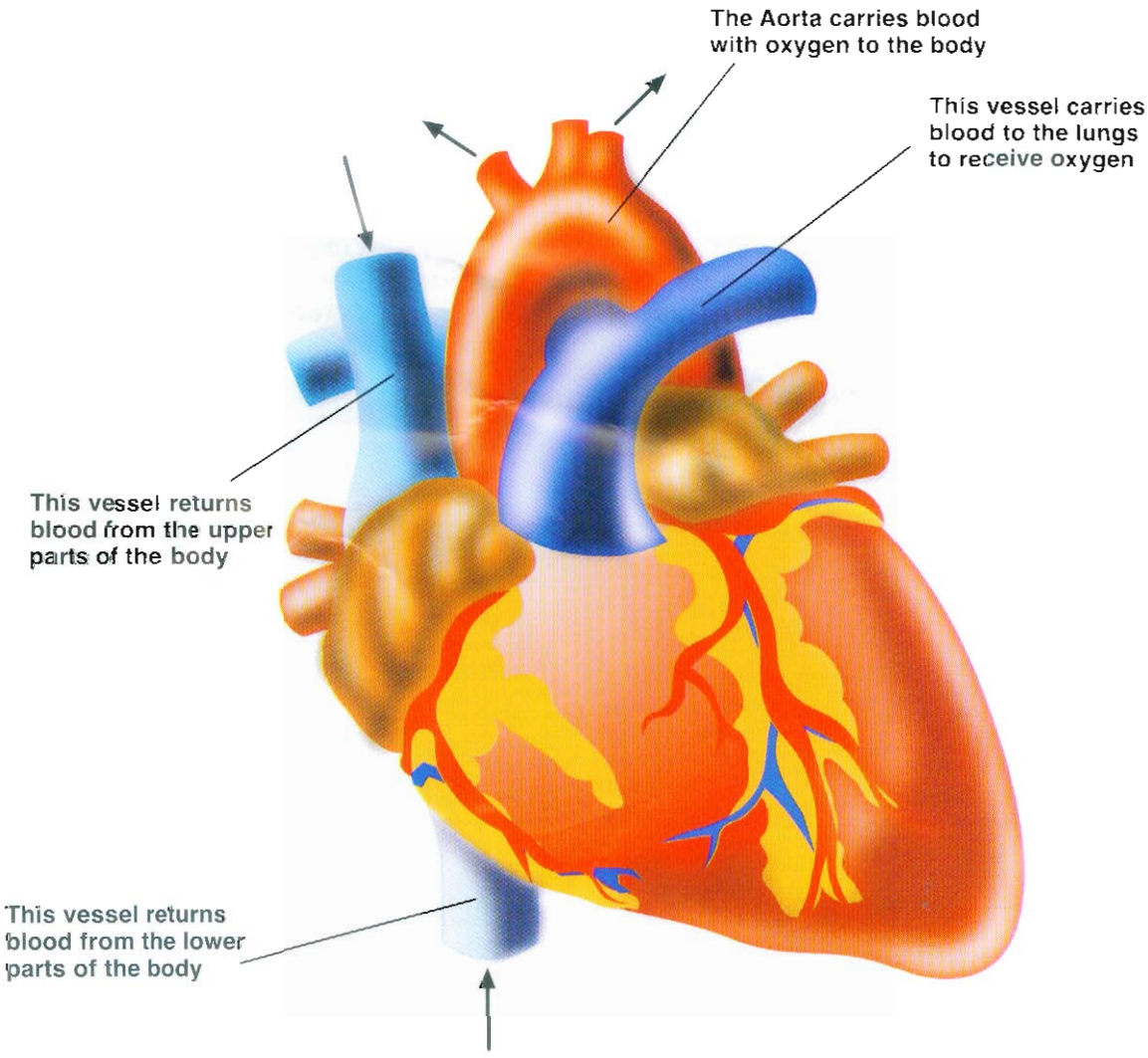
NOTE FOR SUPERVISING ADULT.

Nowadays, the subject of childrens health is an issue that is uppermost in the thoughts of adults, parents and even governments.
In this kit we have tried to give the child a simple background in health activities and their importance.
For some activities, adult supervision is advised.

Activities that require adult supervision are marked with an icon: 

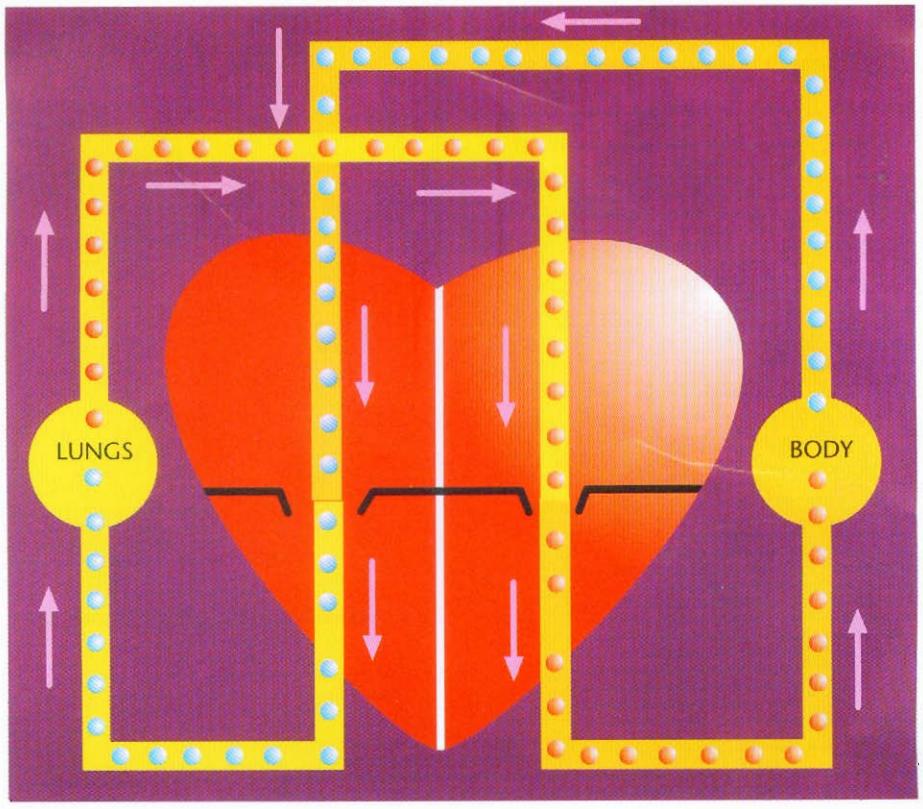
WHAT DOES THE HEART DO ?

Have you ever wondered what your heart does and how it works? We all know that it is positioned in the area of the chest, and you have probably felt your heart beating after a hard game of basketball or football, but what exactly does it do?
The heart is a muscle, about the size of your fist; It sits on the left side of your chest, but nearer to the middle than the side.



The heart is a pump, sending blood to all parts of the body. The blood delivers oxygen and food to our organs and cells and removes any waste products at the same time. We need oxygen and nutrients (food) for our bodies to function and to be healthy. The blood with the waste material and without oxygen returns from the body to the heart and is sent to the lungs to fill up with more oxygen. The oxygenated blood is now ready to make a new delivery and returns to the heart to be pumped once again to the organs of your body. This is a simple explanation of the circulation of the blood with the heart at the center of the circulatory system.

In your kit you have a model of the circulatory system, the heart simulator. When it is turned on,the lights will show you the passage of the blood through the heart and the lungs, and to the body and back.



ACTIVITY 1

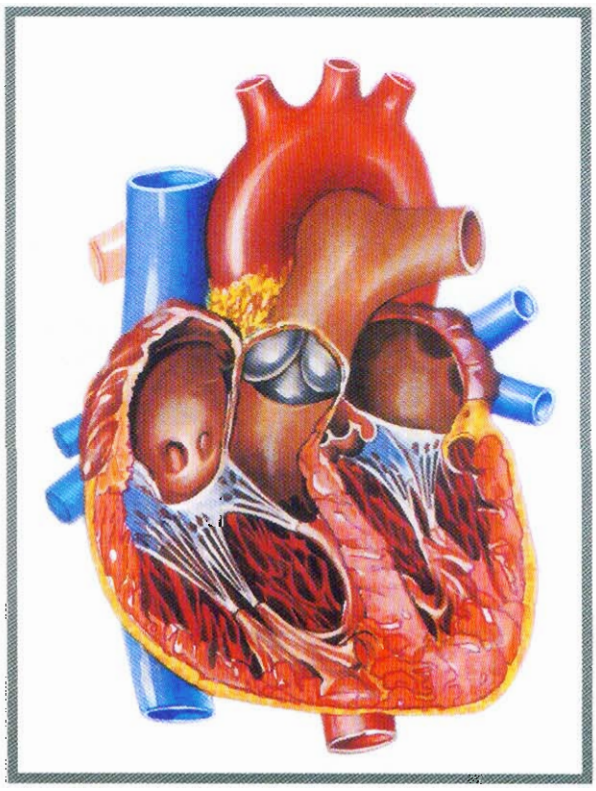
If you have been to the doctor, he has probably listened to your heart with a stethoscope. Now you can listen to your own heart with the stethoscope in the kit. Remember that the heart is on the left of the chest but nearer to the middle. Move the diaphragm of the stethoscope around this area of your chest until you hear a lub-dub sound. This is your heart beating!
Now you can check your heart rate per minute.
Use your stopwatch and count the lub-dub sound as one heart beat.
Count the number of beats in 30 seconds and multiply by 2 to get your heart rate per minute or count for one minute.
The stop watch is easy to use. Use the right-hand button (your right) to start and stop the watch. The left-hand button will reset the watch to zero.

THE RIGHT-HAND BUTTON IS MARKED "START STOP"
THE LEFT-HAND BUTTON IS MARKED "LAP RESET"

HOW THE HEART WORKS

Your heart pumps 24 hours a day, every day. In one day, over 7,000 liters of blood will pass through an adult heart and be pumped to the body or the lungs. The heart beat varies with age, with exercise and with our emotions.
The average heart beat of an adult is 72 beats per minute, which means that an adults heart beats about 100,000 times every day. Childrens hearts beats faster: the average heart rate for a 6 month old baby is 130 beats per minute, for a 4 year old child, 100 beats per minute and for an 8 year old, 90 beats per minute.
Your heart consists of 4 separate areas called chambers.

Each top chamber is called an atrium and each bottom chamber is called a ventricle. Blood returning from the body (with waste material and no oxygen) enters the right atrium and is pumped into the right venticle through a valve. A valve is an opening that allows the blood through but closes behind it so that it cannot go back. The right venticle pumps the blood out of the heart through blood vessels to the lungs where the blood receives oxygen. The oxygenated blood returns to the heart and enters the left atrium; it passes through another valve into the left venticle and from here the blood is pumped out to the body, delivering oxygen and food to all the organs of our body.
All these actions are taking place at the same time: when the ventricles are pumping blood out to the lungs and the body, the atria (plural of atrium) are filling with blood returned from the body and the lungs.
Each beat of the heart moves the blood one more stage in this continuous circulation.

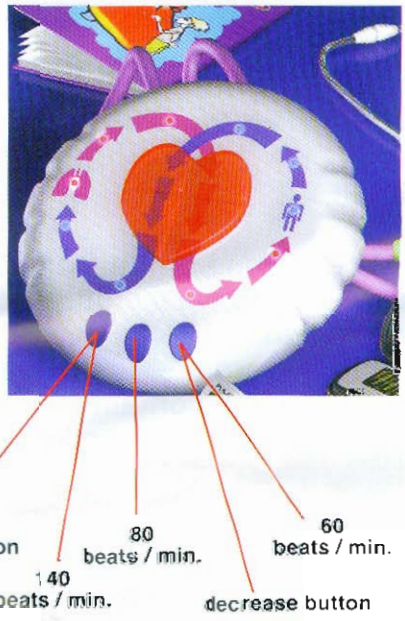


ACTIVITY 2

In your kit you have a model of the circulatory system, the heart simulator. Thie simulator shows you how the blood circulates round the body. You can adjust theheart rate of the simulator to match your own heart rate and that of your friends.
The heart simulator has 3 buttons.

* RIGHT-HAND BUTTON (your right). When you press this button, the simulator will beat at 60 beats per minute.
* MIDDLE BUTTON. The simulator will beat at 80 beats per minute.
* LEFT-HAND BUTTOM (your left). The simulator will beat at 140 beats per minute.

To increase the heart rate, press the left-hand button. One press per second will increase the heart rate by one beat.
To decrease the heart rate, press the right-hand button. One press per second will decrease the heart rate by one beat.
To reset a button to its original heart rate, press the button for 3 seconds.
The simulator will turn off automatically after 4 minutes.



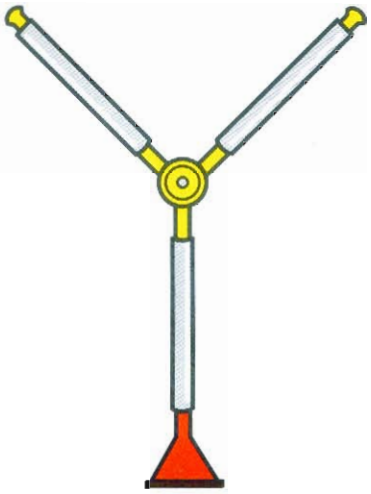
EXAMPLES

If you want to reach a heart beat of 96 beats per minute; press first on the middle button to give a heart rate of 80 beats/min. Then press the increase button 16 times to reach a heart rate of 96 beats / min.
If you want to reach a heart rate of 120 beats/min, press first on the left-hand button to give a heart rate of 140 beats/min. Then press the decrease button 20 times to reach a heart rate of 120 beats/min.

ACTIVITY 3

Make your own stethoscope by assembling the parts supplied in your kit.
You will need the flexible plastic tube, the three way plug, the funnel and the ear pieces. Ask an adult to help you cut the plastic tube into 3 pieces: 2 pieces of length 30 cms and 1 piece of length 40 cms. The 30 cms tubes are the earpieces and should be attached to 2 of the plugs on the 3 way plug. The 40 cms tube should be attached to the third plug and the other end to the funnel. Attach the ear pieces.

If the connections are not secure, use some sticky tape to close them firmly. This stethoscope will work just as well as the one supplied in the kit; try it out on your friends.



THE HEART

The heart is one of the most important organs of the body; in fact we cannot live without it. The heart was once thought to be the center of our emotions and many songs and poems were written about the connection between the heart and love. This is still the case today, even though we now know that it is the brain that controls the heart.
Our vocabulary contains many sayings connected to the heart; here is a small selection showing the various emotions that we associate with the heart:

From the bottom of your heart		with sincerity
To cry your heart out		to cry uncontrollably
A broken heart		to lose someone you love
With a heavy heart		with great sadness
With all my heart		with love

There are other sayings not connected with emotions such as:

To learn by heart - to memorise a text

To have your heart set on something - to want something very much

A change of heart - to change your mind

ACTIVITY 4

There are many more sayings about the heart: see how many you can think of.

HOW EXERCISE AFFECTS OUR HEART RATE

We all know how important exercise is for our bodies. It keeps our muscles strong and our heart healthy.
However, your body has to adapt to working harder and exercise should beincreased slowly and if possible, under supervision. Just as athletes competing at high altitudes or in a hot climate, have to train to adapt to these conditions, you too have to train your body to adapt to increasing amounts of exercise. When you exercise, your heart beats faster to deliver more blood to your muscles; you breathe faster to get more oxygen into the blood and you sweat to keep your body temperature stable. By exercising frequently and by slowly increasing the amount of exercise that you do, you give your heart a really good work out. Gradually you will be able to exercise harder for longer periods of time; this is a sign that you and your heart are becoming stronger and more fit.

ACTIVITY 5

Now that you know how to use the stethoscope you can ask your friends and family to help you conduct further experiments. Simple activities such as lying down or eating a meal can affect the heart rate.
Ask a friend to lie down, wait 3 minutes and check his heart rate.
Now tell him to stand up, wait another 3 minutes and check again.
Ask a friend or family member to let you check their heart rate before and after a meal.
Check your heart rate in the morning and again in the evening.
What do you think should happen in these experiments?
The heart rate should be higher when standing, after a meal and also in the evening: can you explain why?

ACTIVITY 6

Now you will learn how to take your pulse. A pulse is a slight swelling in an artery. Arteries are blood vessels which takes oxygen and nutrients to all parts of the body. By gently placing your fingers on this swelling you can feel the heart beat. The pulse can be felt in several places on the body but the easiest place to check is on the wrist. Place the fingertips of your first 3 fingers on the inside wrist of your other hand.
Place them between the center and the thumb side of the wrist.

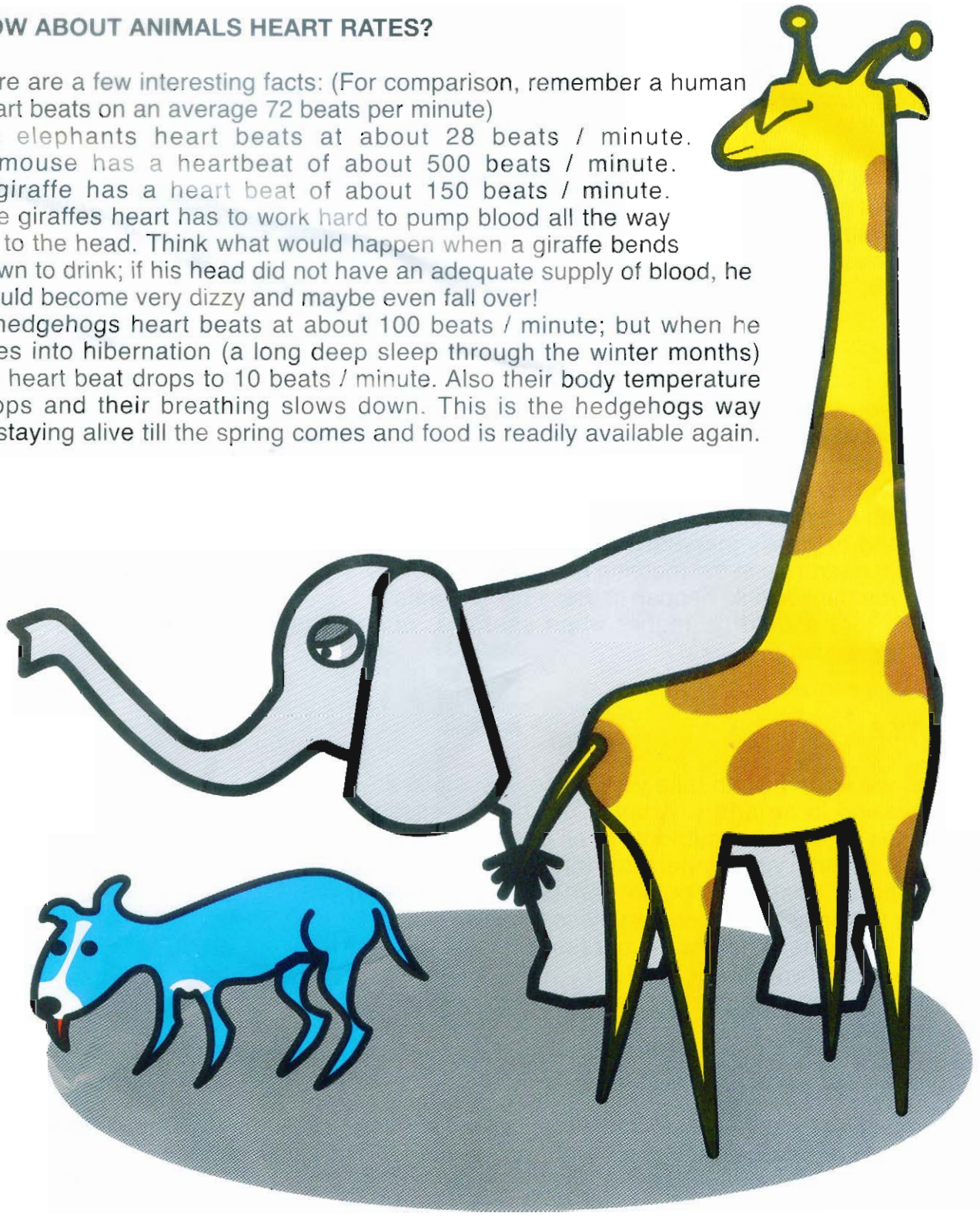
If you cannot feel your pulse straight away, move your fingertips around the area gently till you find it. Use your stopwatch to check your pulse rate for half a minute: multiply by 2 and you have your pulse rate per minute.
Check out your friends and family and remember to record all your results.

ACTIVITY 7

Now that you know how to use the stethoscope and how to take your pulse, you can adjust the heart simulator to your own heart rate. Find your heart beat with the stethoscope and adjust the beats of your heart to match the lights on the simulator.
Ask a friend to sit next to you and take his pulse; now adjust the simulator so that the lights flash at the same rate as his pulse.
Jump up and down for a minute or two and then sit down. Fnd your heat beat with the stethoscope and match your heat beat to the lights on the simulator.

HOW ABOUT ANIMALS HEART RATES?

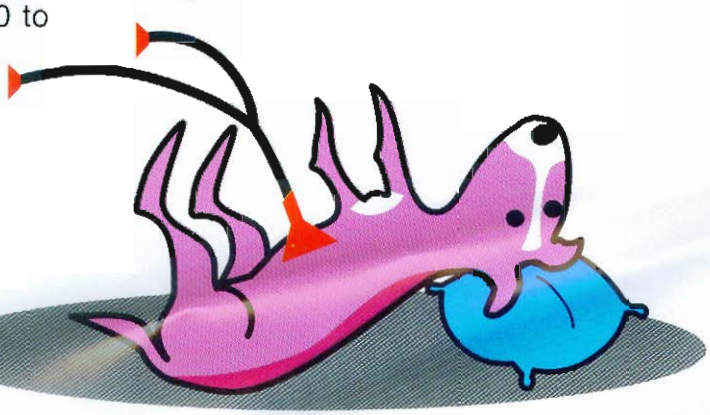
Here are a few interesting facts: (For comparison, remember a human heart beats on an average 72 beats per minute)
An elephants heart beats at about 28 beats / minute.
A mouse has a heartbeat of about 500 beats / minute.
A giraffe has a heart beat of about 150 beats / minute.
The giraffes heart has to work hard to pump blood all the way up to the head. Think what would happen when a giraffe bends down to drink; if his head did not have an adequate supply of blood, he would become very dizzy and maybe even fall over!
A hedgehogs heart beats at about 100 beats / minute; but when he goes into hibernation (a long deep sleep through the winter months) his heart beat drops to 10 beats / minute. Also their body temperature drops and their breathing slows down. This is the hedgehogs way of staying alive till the spring comes and food is readily available again.



ACTIVITY 8

If you have a dog or a cat, check its heart beat with your stethoscope. The heart is situated in the chest area. Place the stethoscope in the middle of the chest and move it slowly to the left (your pets left) until you hear the heart beat. You can also check your pets pulse; the easiest place to find a pulse is in the groin area of the hind leg. With your stopwatch, count the pulse for half a minute and multiply by 2. Record the results. Here are some average pulse rates as a guide.

The average heart rate of cats is between 150 to 200 beats per minute. The average heart rate of dogs will vary according to their size. Small dogs have a heart rate of between 90 to 120 beats per minute, medium sized dogs, between 70 to 110 beats / min, and large dogs, between 60 to 90 beats / min.

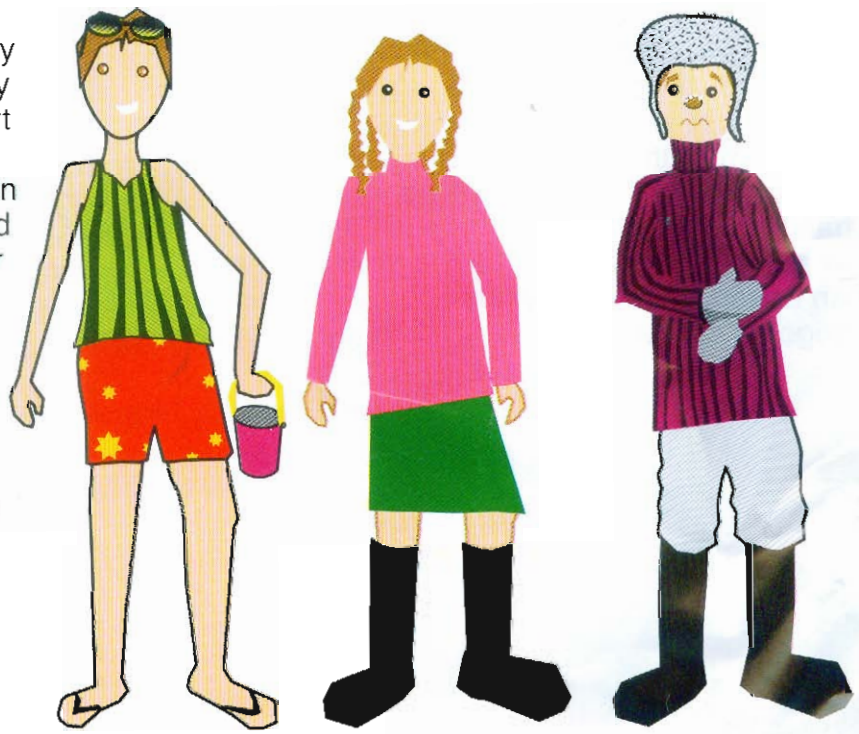


WHAT AFFECTS OUR HEART RATE

Our heart rate varies according to the situation we find ourselves in; it can change with the climate, with our environment, with exercise and with our emotions.
The assumption that the heart is connected to our feelings and emotions is quite understandable. Think what happens when you get excited, nervous or afraid. Your heart beats faster and you can feel it thumping in your chest.

HOW CLIMATE AFFECTS OUR HEART RATE

In very hot weather, our body temperature rises. To return the body to a normal temperature we start sweating.
The sweat evaporates from the skin surface and cools the body. To aid this process the heart beats faster and in extreme heat the heart rate can become rapid and irregular leading to heat stroke and collapse.
In very cold weather, the opposite happens. To prevent heat loss from the surface of the body the heart beats slowly reducing the blood supply to the body surface.

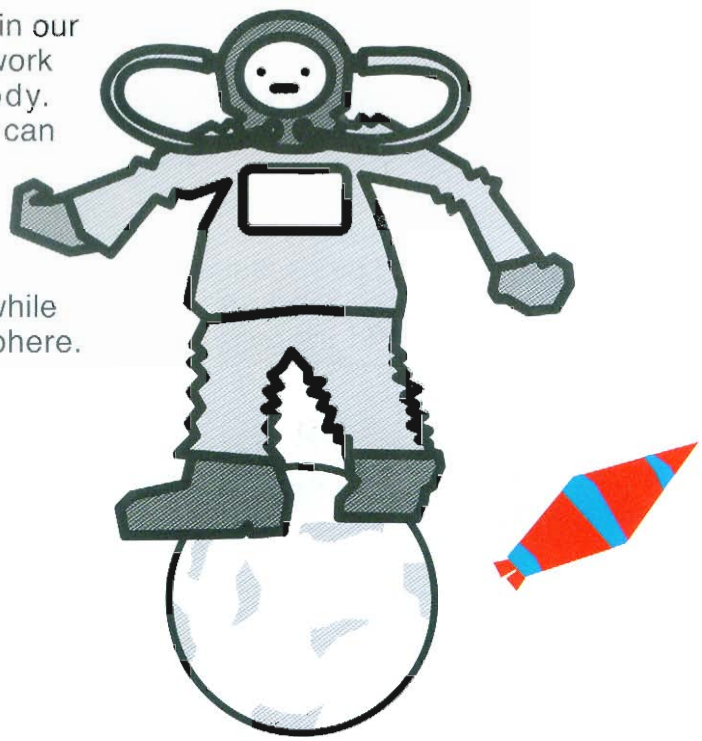


HOW ALTITUDE AFFECTS OUR HEART RATE

Mountain climbers learn how to cope with high altitude. The pressure ofthe atmosphere is reduced and oxygen is less available. To counteract this the heart beats faster to enable more oxygen to get to the cells of the body.

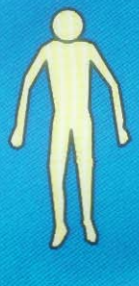
WHAT HAPPENS TO AN ASTRONAUTS HEART IN SPACE ?

In space, there is no gravity pulling the blood in our bodies down, so the heart does not have to work so hard to pump blood round the body. This results in a slower heart beat. A problem can arise when the astronaut returns to earth. The pull of gravity means the heart suddenly has to start beating faster to push the blood to all parts of the body, including the head. An astronaut cannot risk being dizzy or faint while negotiating his return into the earths atmosphere.



ACTIVITY 9

How does exercise affect our heart beat?
Take your pulse before you start exercising and record it. This is called your resting pulse. Now take the skipping rope and skip for 2 minutes. Take your pulse again; there should be a difference!
Do this activity with a friend; it is easier if your friend uses the stop watch and checks your pulse; then change over.
Skipping is an excellent form of exercise. It is used by athletes and especially by boxers to increase all over stamina, coordination and flexibility.

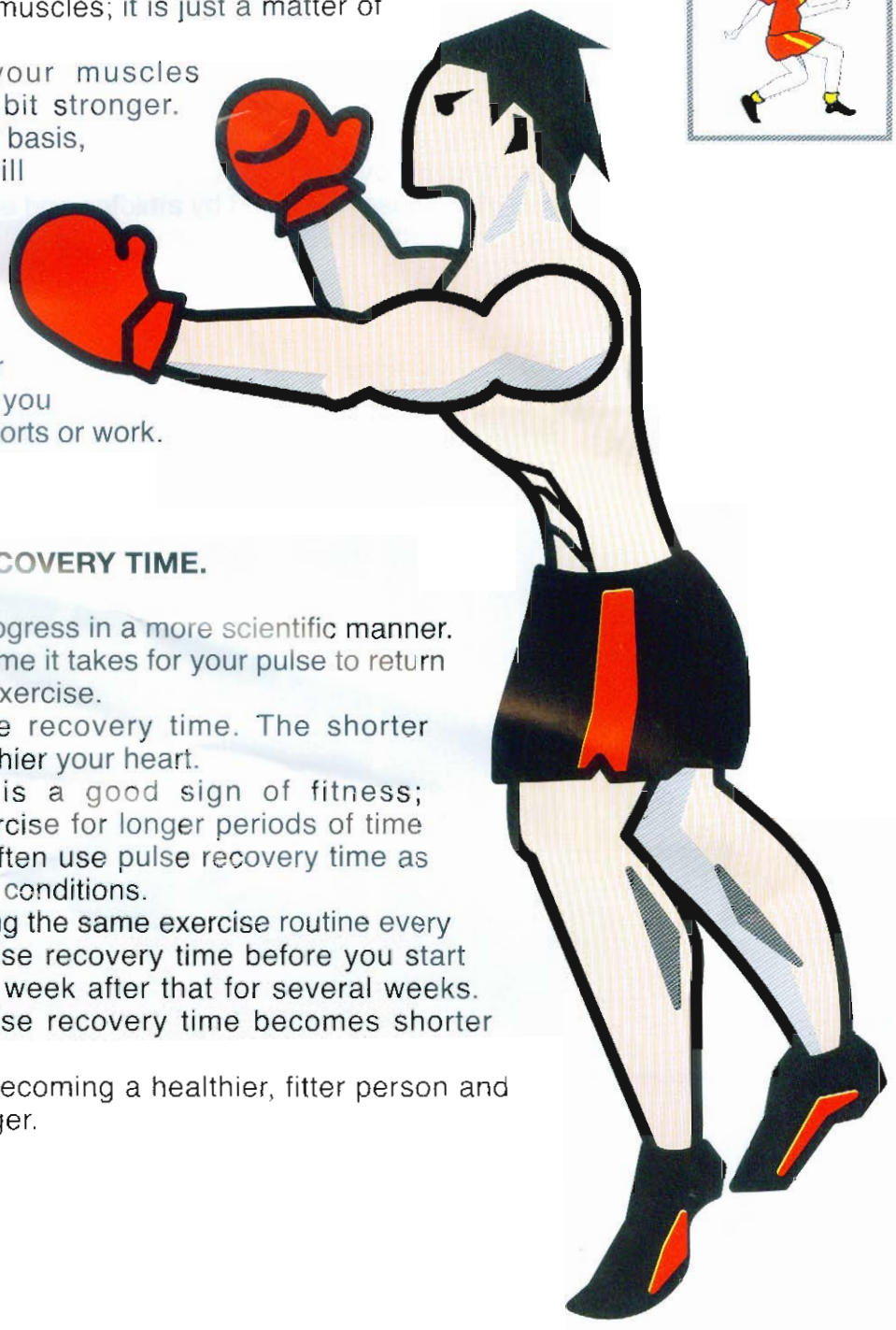
	 RESTING PULSE	 SKIPPING PULSE (2 min.)	 SKIPPING PULSE (3 min.)	 SKIPPING PULSE (5 min.)
YOU				
FRIEND 1				

KEEP FLEXIBLE

When we exercise, we use our joints. A joint is the point where our bones meet, such as in the hip, the knee and the elbow. Exercise keeps our joints in good working order and so keeps us flexible. Most children are reasonably flexible and can bend their bodies and theirlimbs, but as we get older we lose this ability.
By exercising when we are young we can help keep our bodies flexible as we grow up.
Practicing yoga is an excellent way of keeping your body flexible.

MAKE STRONG MUSCLES

Everyone can have strong muscles; it is just a matter of correct exercise and time.
Every time you work your muscles they will become a little bit stronger.
If you exercise on a regular basis, in time, your muscles will definitely be stronger; they may even become slightly larger. The important thing is to exercise regularly and to increase the activity slowly. As your muscles become stronger you will find that you can play sports or work.



CHECK YOUR PULSE RECOVERY TIME.

You can now check your progress in a more scientific manner.
Pulse recovery time is the time it takes for your pulse to return to your resting pulse after exercise.
The aim is to reduce the recovery time. The shorter the recovery time, the healthier your heart.
A rapid recovery time is a good sign of fitness; it means that you can exercise for longer periods of time more frequently. Doctors often use pulse recovery time as an aid to diagnosis of heart conditions.
This activity consists of doing the same exercise routine every day and checking your pulse recovery time before you start exercising and then every week after that for several weeks. You will see that your pulse recovery time becomes shorter as the weeks go by.
This is proof that you are becoming a healthier, fitter person and your heart is growing stronger.

ACTIVITY 10

Plan your personal exercise program. You may decide to run a certain distance every day, or maybe you prefer a more varied program. For example, you could skip for 5 minutes, run for 5 minutes, do jumping jacks for 5 minutes. Whatever you decide, you should do the same program each day throughout this experiment.

ACTIVITY 11

You will need a friend to help you check your pulse recovery time. Before you start your exercise routine you must check your resting pulse. At the back of this book is a page called **Pulse Recovery Record**. Record your resting pulse at the top, and then start your exercise program. As soon as you finish, sit down and find your pulse. Your friend will hold the stop watch and will tell you to count your pulse for 15 second intervals every 30 seconds. Ask him to call **START** and **STOP** at the beginning and end of the 15 second interval. Record the number of pulse beats on the page and wait for the next call from your friend. Continue this procedure until you feel rested and then continue another 2 minutes.
Record your pulse rate per minute by multiplying the pulse rate for 15 seconds by 4, and check how long it takes to reach your resting pulse.

PULSE RECOVERY RECORD - START OF EXERCISE PLAN

MINUTES AFTER EXERCISE	BEATS PER 15 SECONDS	x 4	BEATS PER MINUTE
0.0	30	x 4	120
0.5	29	x 4	116
1.0	28	x 4	112
1.5	27	x 4	108
2.0	26	x 4	104
2.5	25	x 4	100
3.0	25	x 4	100
3.5	24	x 4	96
4.0	23	x 4	92
4.5	23	x 4	92
5.0	22	x 4	88
5.5	21	x 4	84
6.0	21	x 4	84
6.5	21	x 4	84
7.0		x 4	
7.5		x 4	
8.0		x 4	
8.5		x 4	
9.0		x 4	
9.5		x 4	
10.0		x 4	
10.5		x 4	
11.0		x 4	
11.5		x 4	
12.0		x 4	
12.5		x 4	
13.0		x 4	
13.5		x 4	
14.0		x 4	
14.5		x 4	
15.0		x 4	
			resting pulse = 84/min

PULSE RECOVERY RECORD - AFTER X WEEKS

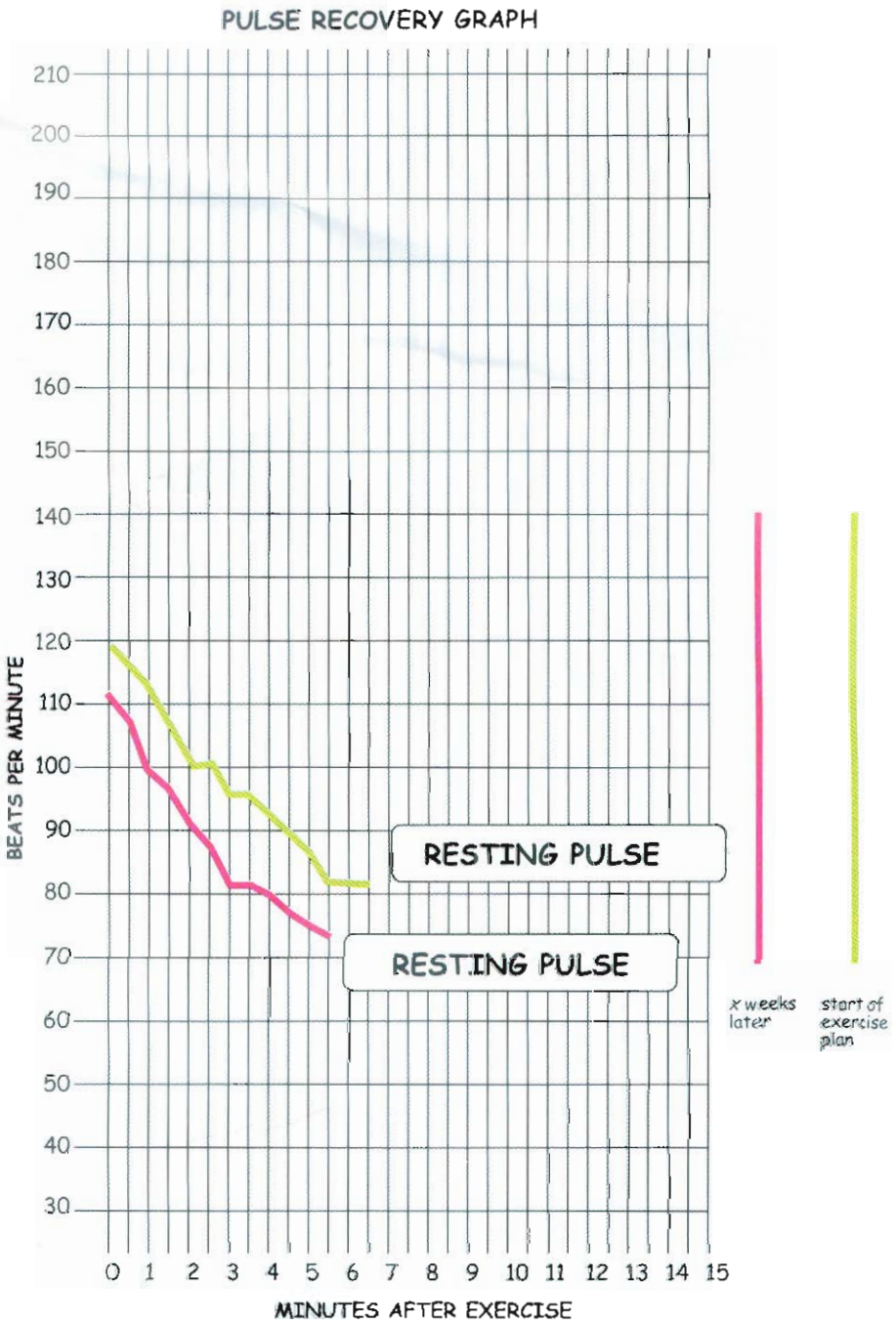
MINUTES AFTER EXERCISE	BEATS PER 15 SECONDS	x 4	BEATS PER MINUTE
0.0	28	x 4	112
0.5	27	x 4	108
1.0	25	x 4	100
1.5	24	x 4	96
2.0	23	x 4	92
2.5	22	x 4	88
3.0	21	x 4	84
3.5	21	x 4	84
4.0	20	x 4	80
4.5	19	x 4	76
5.0	19	x 4	76
5.5	19	x 4	76
6.0		x 4	
6.5		x 4	
7.0		x 4	
7.5		x 4	
8.0		x 4	
8.5		x 4	
9.0		x 4	
9.5		x 4	
10.0		x 4	
10.5		x 4	
11.0		x 4	
11.5		x 4	
12.0		x 4	
12.5		x 4	
13.0		x 4	
13.5		x 4	
14.0		x 4	
14.5		x 4	
15.0		x 4	
			resting pulse = 76/min

ACTIVITY 12

Continue with your exercise routine every day, and each week check your pulse recovery time. We have given you only one **Pulse Recovery Record** sheet. Ask for help to photocopy some more sheets, or copy the sheet by hand.
Remember each week to record the date and your resting pulse before you start exercising.

ACTIVITY 13

You will see that your pulse recovery time is becoming shorter, but to make the experiment more scientific, we suggest that you make a graph of your progress.
At the back of the book is a page called **Pulse Recovery Graph.** You may not be used to making graphs, so we have given you an example of a pulse recovery record and how it transfers to a graph. If you are still not sure how to do this ask an adult for help.
You could use the same page to record your pulse recovery time, and each week record on the graph in a different colour. This way you can see your progress.



USING YOUR PEDOMETER

Your kit contains a simple pedometer. This is a small instrument that you attach to your waistband and it records the number of steps you walk. Have you ever thought how far you walk in a regular day? Walking round the house, round school, walking the dog, gong round to visit your friends: it all adds up to a lot of steps!
The pedometer should be clipped to your waistband or belt; in line with your knee. It does not matter which side, but it should be firmly attached in a vertical position. If it is not securely placed on your waistband and moves around, it will not record accurately the number of steps you take. If the pedometer does not sit firmly in line with your knee, attach it on the side of your waistband over the hip bone.

ACTIVITY 14

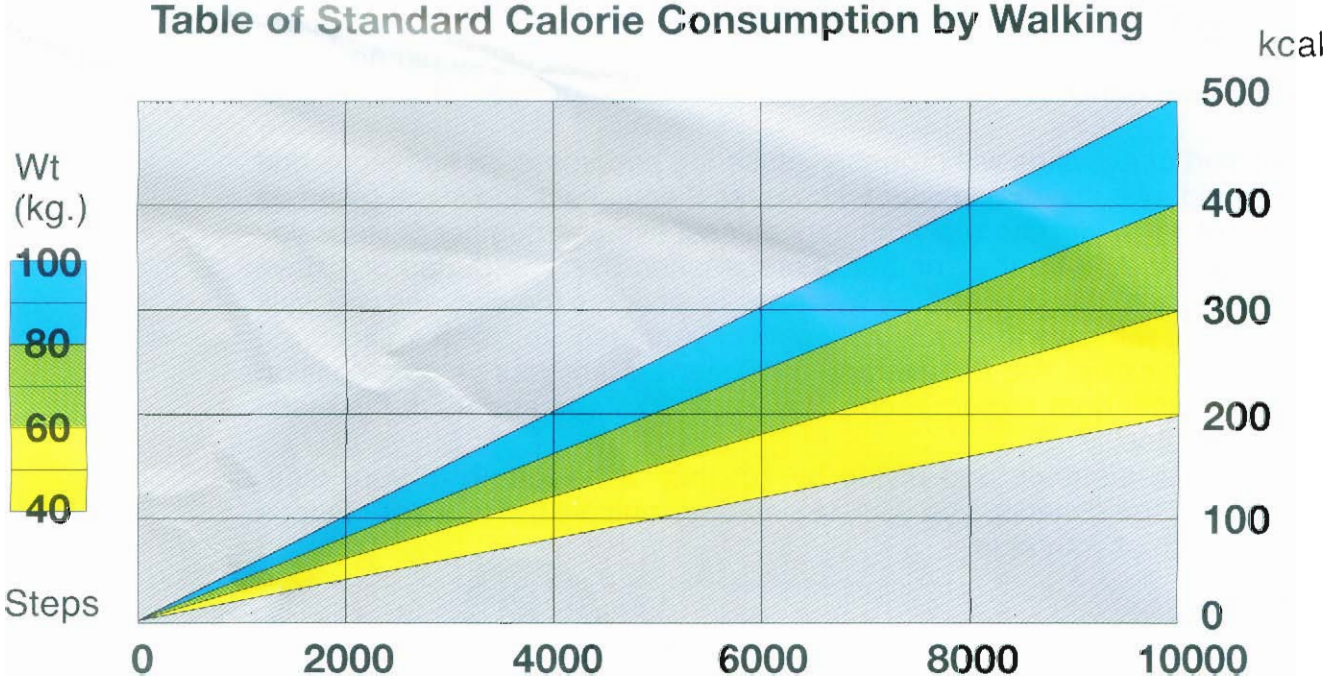
Check how may steps you take in one day.
Attach the pedometer when you get up and click the reset button to start at "0". Before you go to bed at night, take the pedometer off and record the number of steps. The number of steps recorded will never be 100% accurate because during the day there were times when you did not walk; you jumped, danced, played basketball or football, or even stood on your head!
These sort of activities will probably cause the pedometer to add steps and you should take this into account. However, if you check the steps taken on 4 different days, you can reach an approximate average number of steps you take in a day. Add up the number of steps taken over the period of 4 days and divide by 4, this is your daily average. To work out the distance you walk in a day you will have to check the length of your step. To reach an accurate length of your step, find the average of 10 steps. Mark your starting position and stand with both feet together. Now walk 10 steps and mark the place where you stop.
Measure the distance and divide by 10; this is the length of your step. To work out the distance you walk in one day, multiply the number of steps by the length of your step.

By using the pedometer as part of an exercise routine, you will get more accurate results because you walk in a steady rhythmic fashion. Decide on a starting number of steps, say 1000 steps. Walk this distance for 2 to 3 days and then you can gradually start increasing the number of steps every 3 to 4 days or whatever time schedule you feel confortable with. Decide how many steps will be your goal and when you want to achieve this goal.

If you start at 1000 steps and your goal is 4000 steps in 10 weeks, you need to increase your steps by 3000 in 10 weeks. This is an increase of 300 steps each week.

The following chart shows you how many calories are burned up by walking a certain number of steps. Calories are energy and the further you walk the more calories you use. Calorie consumption varies according to your weight, so weigh yourself before reading the chart.

Table of Standard Calorie Consumption by Walking



KEEP YOUR WEIGHT STEADY

The food we eat is like fuel: it gives us energy. If the food gives us more energy than we use, we put on weight. We use energy all the time, but if we are not very active we will not use it all and what is left is stored as fat. Exercise is the best way of using all the energy created by the food we eat. So by eating wholesome healthy food and doing regular exercise you will keep the weight which is right for your height and age.

ACTIVITY 15

Before we explain what to eat and why, make a list of everything that you eat and drink for the next 3 days. Everything includes snacks, sweets, soft drinks and of course, meals. You will be surprised, we usually eat more than we think we eat!

EATING THE HEALTHY WAY.

The food pyramid was created to show the various groups of food that we need to eat to grow up healthy. We should all eat a variety of food each day that gives us the nutrients that we need to grow healthy and strong. It shows us which foods are in each group and how many servings of each food we should eat in one day.
The group at the base of the pyramid should give you the largest part of your daily food input. As you climb the pyramid the amount of servings in the groups gets smaller. We will start at the base of the pyramid and explain a few simple facts about each group of food.

Bread, Cereal, Rice and Pasta Group

This group is our source of **Carbohydrates**: we need these foods to give us energy. You can choose 9 servings from this group every day.

Vegetable Group

This group is still near the bottom of the pyramid which shows how important it is. We need vegetables to load us with **vitamins** and **minerals**; they will give us a healthy body by making sure all the different parts inside of us work properly. They will also protect us against illnesses as we get older. You can choose 4 servings a day from this group.

Fruit Group

This group goes together with the vegetable group and is just as important. Fruit gives us loads of **vitamins** and protects us against illnesses in the future. It will also give us some **Carbohydrates** to boost our power supply.
You can choose 3 servings a day from this group.

Milk, Yogurt and Cheese Group

We have now climbed the pyramid. This group is no less important; just the amount of servings is smaller. This group gives you **protein,** the building blocks for your body; you really need these to grow tall and strong. This group also gives you **calcium,** the **mineral** that you need for strong bones and teeth. You can choose 3 servings a day from this group.

Meat, Fish, Dry Beans, Eggs and Nuts Group

This group also gives us **protein**, and lots of it.
You can choose 3 servings a day from this group.

Fats, Oils and Sweets Group

This group is at the top of the pyramid and we need only very small amounts. So, go easy on the butter: don't eat fried foods if you can help it, and as for the sweets, just a little: treat yourself now and again.

ACTIVITY 16

Now that you know what to eat, try to eat according to the food pyramid.
To begin with, record each day what you eat. Soon you will not need to record your meals as it will become second nature to eat the healthy way.

FEEL GOOD - LOOK GOOD

Exercise has an added bonus; it makes us feel good. When you exercise, your body produces chemicals called endorphins. These chemicals affect your brain and put you in a good mood. So if you are feeling down, go for a ride on your bike or a run round the block. You will come home feeling much better!
Exercise makes us much more aware of our bodies. Apart from feeling lighter on your feet and more flexible, you will find that you are walking tall, with a spring in your step and a smile on your face!

PULSE RECOVERY RECORD - START OF EXERCISE PLAN

MINUTES AFTER EXERCISE	BEATS PER 15 SECONDS	x 4	BEATS PER MINUTE
0.0		x 4	
0.5		x 4	
1.0		x 4	
1.5		x 4	
2.0		x 4	
2.5		x 4	
3.0		x 4	
3.5		x 4	
4.0		x 4	
4.5		x 4	
5.0		x 4	
5.5		x 4	
6.0		x 4	
6.5		x 4	
7.0		x 4	
7.5		x 4	
8.0		x 4	
8.5		x 4	
9.0		x 4	
9.5		x 4	
10.0		x 4	
10.5		x 4	
11.0		x 4	
11.5		x 4	
12.0		x 4	
12.5		x 4	
13.0		x 4	
13.5		x 4	
14.0		x 4	
14.5		x 4	
15.0		x 4	
			resting pulse = 84/min

PULSE RECOVERY RECORD - AFTER X WEEKS

MINUTES AFTER EXERCISE	BEATS PER SECONDS	x 4	BEATS PER MINUTE
0.0		x 4	
0.5		x 4	
1.0		x 4	
1.5		x 4	
2.0		x 4	
2.5		x 4	
3.0		x 4	
3.5		x 4	
4.0		x 4	
4.5		x 4	
5.0		x 4	
5.5		x 4	
6.0		x 4	
6.5		x 4	
7.0		x 4	
7.5		x 4	
8.0		x 4	
8.5		x 4	
9.0		x 4	
9.5		x 4	
10.0		x 4	
10.5		x 4	
11.0		x 4	
11.5		x 4	
12.0		x 4	
12.5		x 4	
13.0		x 4	
13.5		x 4	
14.0		x 4	
14.5		x 4	
15.0		x 4	
			resting pulse = 76/min

PULSE RECOVERY GRAPH

BEATS PER MINUTE

210
200
190
180
170
160
150
140
130
120
110
100
90
80
70
60
50
40
30

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

MINUTES AFTER EXERCISE