

cubs



# Halfords

## activity pack

### How to's



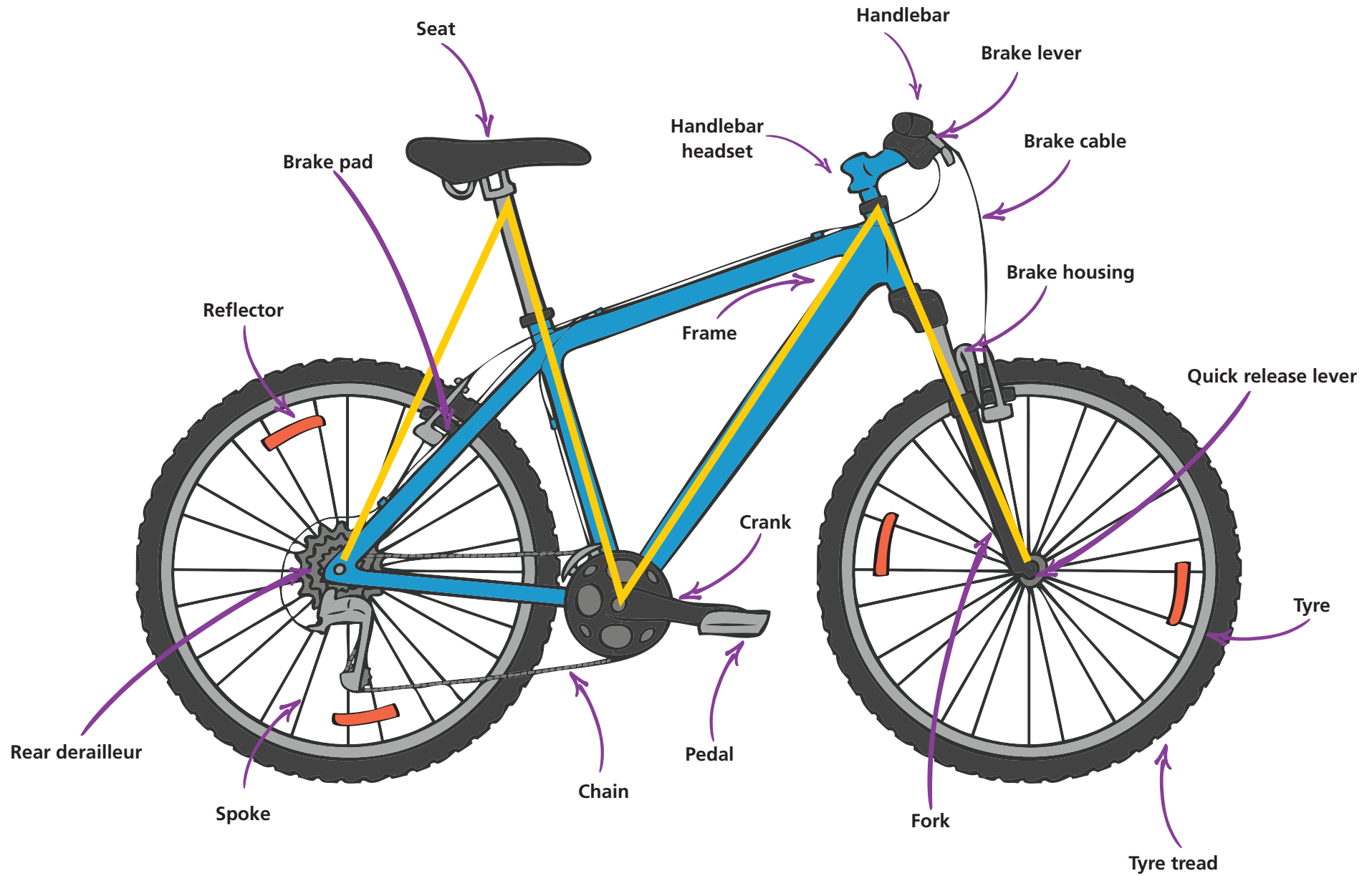
halfords

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# The 'M' check



# Clean and oil a bike



## Cyclist badge earner

### Part of requirement two

Be able to clean and oil a bicycle. Show how to pump up the tyres and how to mend a puncture.

### Part of requirement six

Understand the need for keeping the bicycle in a roadworthy condition, and how to do this.



## Maintenance point

### Looking after your bike saves time and maintenance costs.

Any build-up of grease, dirt or grit can damage bike parts and affect performance. Parts could also wear out more quickly and need replacing. For this activity you might want to ask your Cubs to wear old clothes that might get dirty.



## Essential Kit

- Bucket of warm water
- Rag, sponge, chamois leather
- Bike cleaner, bike lube, bike polish
- Set of bike cleaning brushes
- Degreaser
- Low pressure water hose (if available)

## Step 1

Get your Cubs to work in pairs to take turns cleaning and oiling their bikes. This will halve the amount of equipment needed. Fill buckets of warm water and ask them to stand their bikes upright by leaning them against a wall. Ask Cubs to spray bike cleaner onto the frame and use a sponge and warm water to remove most of the dirt using a rag or soft brush.

## Step 2

Show them how to dip a chain brush in degreaser and scrub the gear cassette, jockey wheels, chain rings and chain. Rinse all components with the hose, if you have one, or a sponge soaked in water.

## Step 3

Ask the Cubs to spray the wheels with bike cleaner, paying attention to brushing where the brake pads touch the rims. Smaller brushes are handy to reach some parts. Make sure no bits of rag or brush are left in the wheels.

## Step 4

Get the groups to rinse their bikes with clean water, wiping off any stray dirt. Remind them that gears and brakes need a bit of grease, so they shouldn't rinse those too thoroughly. Get them to dry off their bikes with dry rags and the chamois leather, which will shine the frame and repel dust.

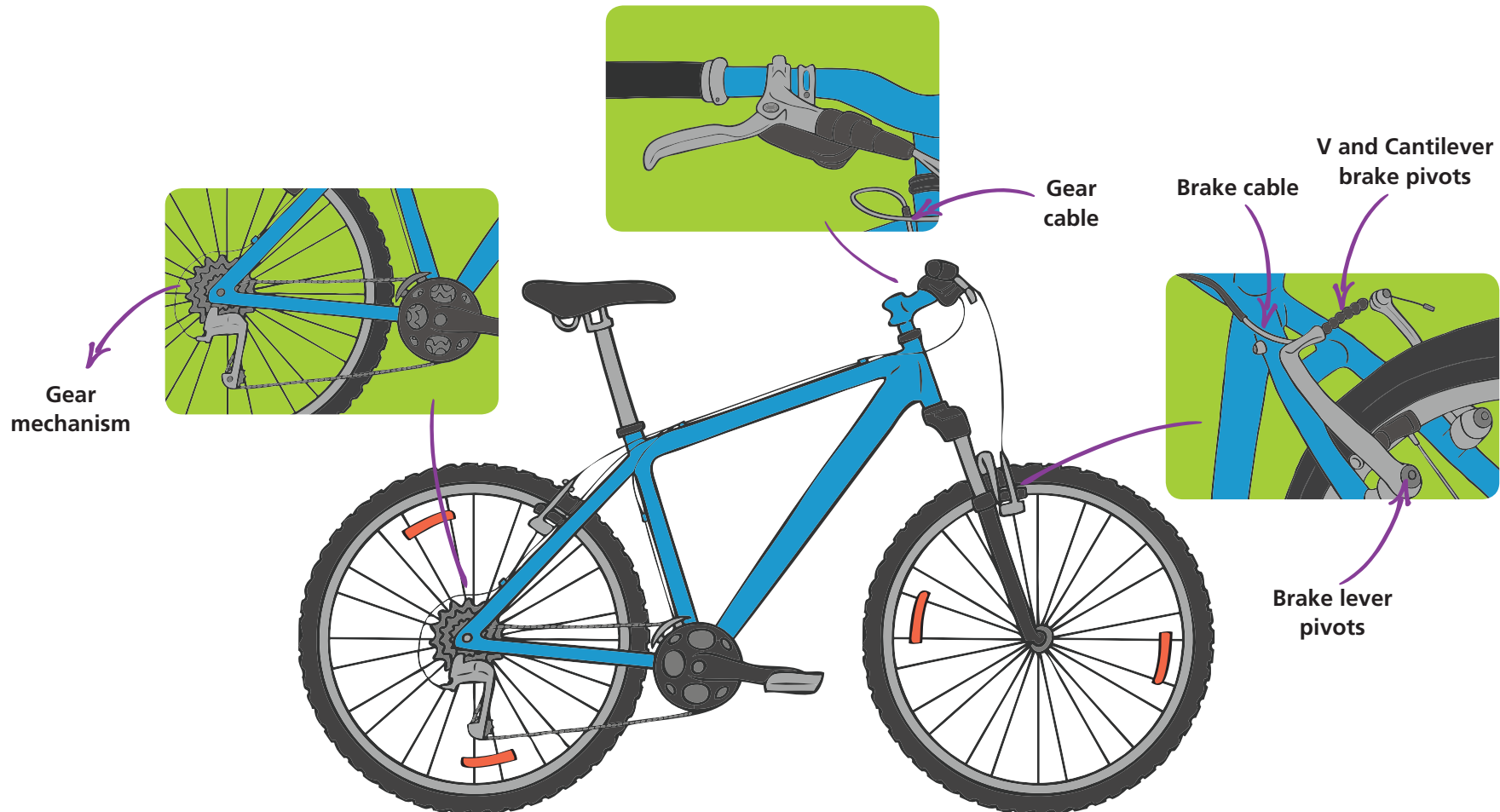
### Step 5

The chain needs lubricating. The easiest way to do this is to slowly move the pedals backwards with your hand to move the chain, and as it moves squeeze the lubricant onto it until it has gone all the way round. All degreased parts should be oiled.

As well as the chain, the following parts need lubricating if their bikes have them:

- V and cantilever brake pivots
- Brake lever pivots
- Brake cables
- Front and rear gear mechanisms
- Gear cables

Remind the Cubs that there should be no grease on the brake pads themselves.



# Fit a safety helmet



## Safety point

Wearing a good helmet correctly could save your life.



## Essential kit

- A tape measure
- Safety helmet

You could either ask the Cubs to bring in their safety helmets, or if they don't all have one, demonstrate to the group with those who have. Tell them that if they have a bike, then they must have a helmet too.

### Step 1

Split the Cubs into pairs and ask them to measure each other's heads, placing the tape measure about 1cm above their eyebrows.

### Step 2

Match the measurement to the size guide on the helmet chosen.

### Step 3

Get them to make sure the helmets are low on their foreheads, just above their eyebrows. Ask them to shake their heads and make sure the helmet does not move.

### Step 4

Improve tightness and comfort by adjusting the straps on the helmet for a perfect, safe fit.



# Check and maintain tyre pressure



## Cyclist badge earner

### Part of requirement two

Be able to clean and oil a bicycle. Show how to pump up the tyres and how to mend a puncture.



## Safety point

### Correct pressure is essential.

Tyre pressure affects how well the rubber grips the road or track surface and, therefore also affects the speed. If tyres are too soft, bikes can skid. Too hard and traction could be lost, at worst leading to a blow-out. Remind the Cubs to always take their pumps with them on a bike ride.



## Essential Kit

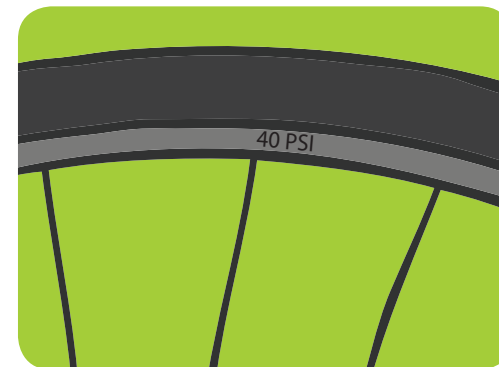
- Bike tyre pressure gauge
- Bike pump
- Bicycle wheel

## Step 1: Know the right tyre pressure

Check your Cubs know what the tyre pressure should be for their bikes. Show them where, in most cases, the recommended pressure (PSI) is stamped on the side of the tyre.

Bicycle	Rear wheel PSI	front wheel PSI
Mountain bike	45	35
Road bike	100-130	100-130

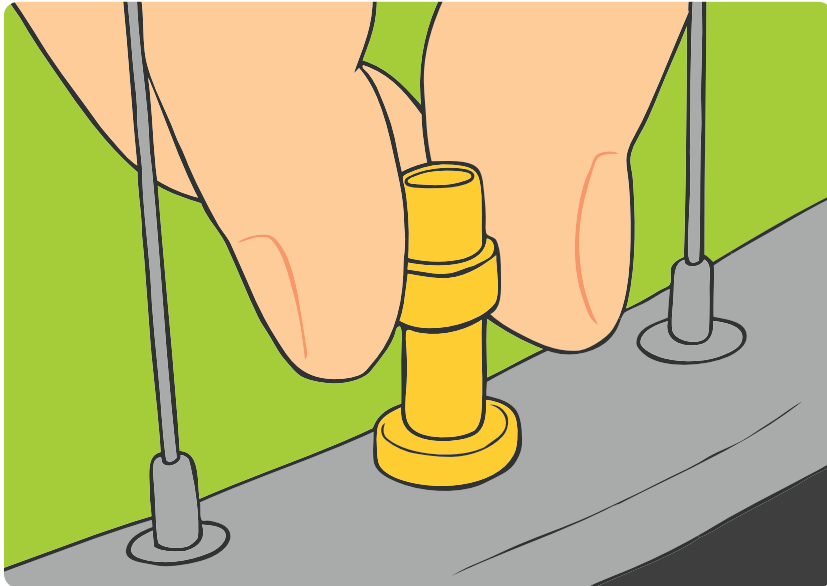
Rough Guide to PSI  
(Pounds per Square Inch)  
of air in tyres



Sample PSI

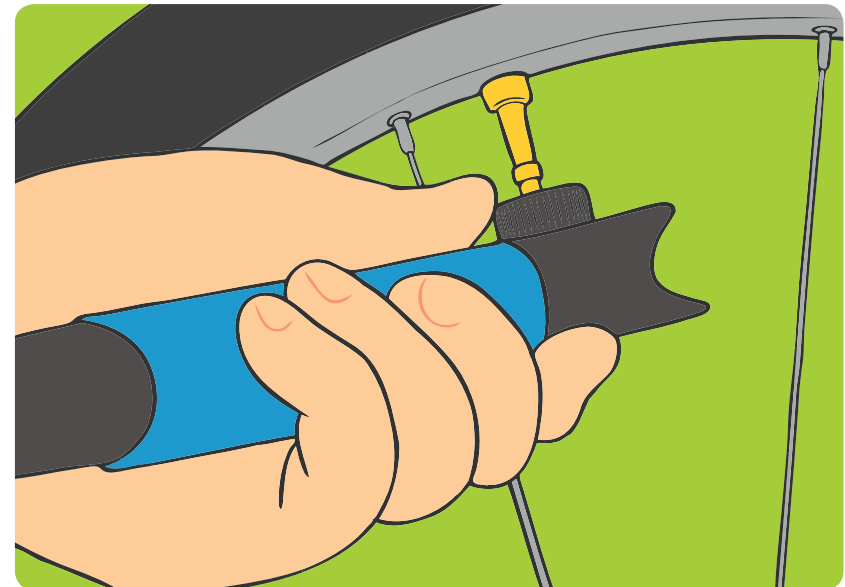
### Step 2: Remove the dust caps and use the tyre gauge

Show the Cubs how to unscrew the dust caps from the inside of their bicycle wheels and put them where they won't lose them. Explain how to fit the tyre gauge on to the valve and look at the reading. This will tell you the PSI.



### Step 3: Adjust the pressure in the tyre using the pump

Show the group how to fit their bicycle pumps onto the valves, screwing more tightly to release air if the PSI is too high. Some will have detachable fittings that pull out of the end of the pump. Some pumps have tyre gauges on them. To avoid jiggling the valve around and therefore loosening it while pumping, show the Cubs how to hook their fingers around a valve.



### Step 4: Re-test the pressure, re-fit the dust cap

Get the group to re-test the tyre pressure then fit the dust cap when it's correct.



# Find and fix a puncture



## Cyclist badge earner

### Part of requirement two

Be able to clean and oil a bicycle. Show how to pump up the tyres and how to mend a puncture.



## Maintenance point

### Know how to do it so you're always prepared.

Almost all cyclists get punctures at some time – usually when it's most inconvenient. But if your Cubs have the right tools and know how, they'll be able to mend a puncture wherever it happens.



## Essential Kit

- Puncture repair kit
- Tyre levers
- Spanner (if needed for wheel nuts)
- Bike pump
- Spare inner tube
- Chalk, crayon, sandpaper
- Tyre pressure gauge
- Bicycle for demonstration

## Part one - find the damage

### Step 1: find the cause

Investigate the cause of the damage by looking at the tyre for any obvious cause of the puncture, such as a thorn, or nail. If you find it, pull it out carefully.

### Step 2: Remove the wheel

#### Front wheel

If the bike has quick-release wheels, operate the levers to take them off. Otherwise loosen the wheel nuts with a spanner. Check that the inner tube is deflated.

#### Rear wheel

Slightly more complicated than the front wheel, rear wheels have chains and gears to think about.

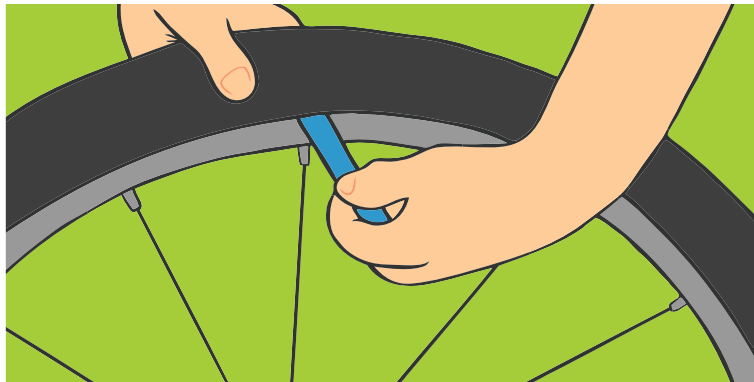
**(a)** Start by putting the chain on the smallest chain ring by making sure the bicycle is in the lowest gear. This will make the chain looser and the job easier.

**(b)** Disengage the brakes so the brake pads can be pulled apart and the gap widened for the tyre to fit through. Road bikes have a small handle which you can pull to do this. Mountain bikes often have 'V'-brakes: two metal brake arms joined across the top of the wheel by a metal spring. Squeeze the two levers together with your hand and detach the metal spring from the brake arm. If your bike has disc brakes, you don't have to do anything.

(c) Turn the bike upside down so it rests on its saddle and handlebars. If the bike has a quick-release handle, pull this down while holding the nut on the other side of the wheel, and manoeuvre the wheel out of the brackets which hold it in place. If your bike has a derailleur, you will have to pull this out of the way while you are getting the wheel out. If the chain gets caught, just lift it off the sprockets.

### Step 3 Free the tyre

Using the tyre lever, show the Cubs how to lever the tyre away from the rim of the wheel, starting on the rim opposite the valve. Work round the wheel, levering away about every four inches, so that eventually one side of the tyre is free from the wheel rim.



### Step 4 Pull out the inner tube and find the hole

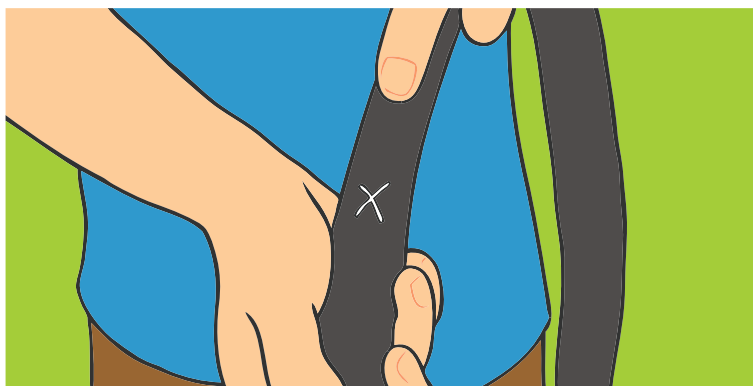
Gently pull out the inner tube one section at a time, pushing out the valve. If the Cubs were at the side of the road without a bucket of water, they would have to blow the inner tube up a little and listen for escaping air, or feel it against their cheek. If you're using a bucket at HQ, submerge the inner tube in the water and watch out for the bubbles. The hole is where the bubbles emerge from the inner tube. Mark the spot with chalk or crayon.



## Part two: Fix it

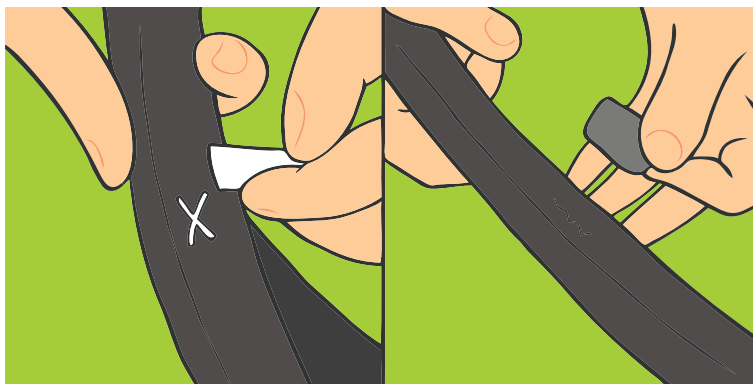
### Step 1: Remove the cause

Show the Cubs how to feel around inside the tyre for where the damage may have been caused, and if there is something sharp sticking out, show them how to remove it.



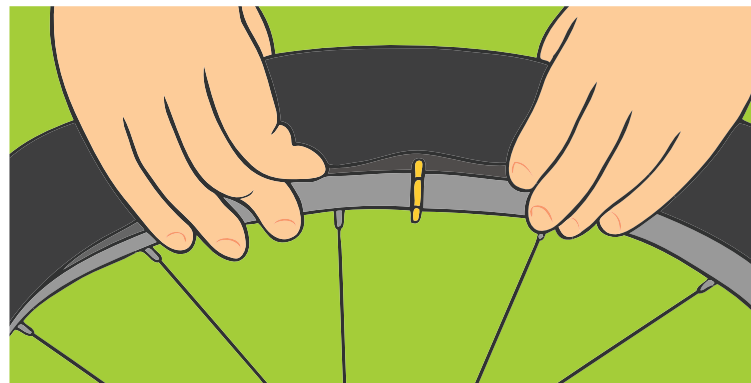
### Step 2: Sand and patch

Taking the sandpaper show the Cubs how to sand around the hole in the inner tube until it's roughened a little, at the same time making sure the inner tube is completely dry. Stick on a patch from the kit, following the instructions in the kit.



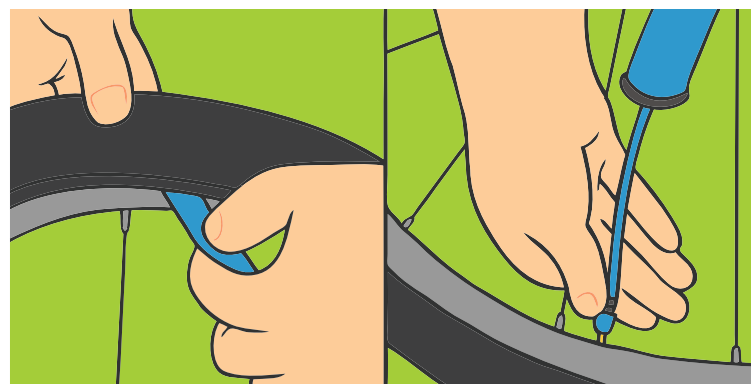
### Step 3: Replace the inner tube

Show the Cubs how to pump a small amount of air into the inner tube then tuck it inside the tyre, starting opposite the valve.



### Step 4: Pump it up

Show the Cubs how to pull the valve back through the tyres and blow up the inner tube to the specification advised by the manufacturer. Fix the wheel back onto the bike.



# Test and fix brakes



## Cyclist badge earner

### Part of requirement six

Understand the need for keeping the bicycle in a roadworthy condition, and how to do this.



## Essential Kit

- New brake pads
- Spanner

## Guide

### Step 1

Help your Cubs to test their brakes by doing a simple test. They could be either sitting on their saddles or standing next to their bikes, which could be leaning against a wall or supported by hand. The Cubs should pull the brake levers towards the handlebars as if they were braking, and check that not much power is needed to move them and the action is smooth. If the lever can almost reach the handlebars, the brake needs adjusting.

### Step 2

Show the Cubs their brake pads, and explain that they stop the bike by pressing on the wheels to slow them down. Most pads have a 'wear line' which tells you when they need to be replaced, but they should also be wearing evenly and completely on the wheel rim, with no deep grooves. If the total surface of the brake pad is not connecting with the rim, due to uneven wearing of the pad, then they should also be replaced. Make sure there are no deep grooves in either the pads or the wheel rims.

These are signs of wear that may require the replacement of both brake pad and wheel rim.

### Step 3

To replace the pads use the quick-release system at the top of the brake arms. Undo the nuts holding the brake pads in alignment, and take out the old pad. Put in the new pad the right way up and level, and tighten the nuts. Before the nuts are tightened completely with the spanner, test the pads hit the wheel rim smoothly and close to the top of the rim when you pull the brake levers.

### Step 4

Sometimes, brake cables need adjusting. Find the screw attachments on the brake levers, where the cable comes out of the lever. The threaded bolt which adjusts tension in the cables can be unscrewed with your fingers until the cable has the right tension, ie taut when the brakes are squeezed. Lock this in place by tightening the nut back against the brake lever.

# Adjust the saddle and handlebars

## Maintenance point

### Comfort and safety.

If the nose of the saddle is poking up it'll be uncomfortable, and if it slopes down the rider will be pushed towards the handlebars, causing shoulders and arms to tense up. The height must also be right - too low and knees will suffer; too high and it'll be hard to stop safely in an emergency. With the handlebars, it's all about comfort and what suits the individual.

## Essential Kit

- Adjustable spanner
- Set of Allen keys

### Step 1

Check the saddle is parallel to the ground.

### Step 2

Get the Cubs to sit on their bikes while they're leaning against a wall. With their heels flat on the pedals, ask them to pedal backwards until the pedal is at the bottom. For the correct saddle height, that leg should be fully extended with no bend in the knee. They should also be able to put the ball of their foot on the floor while sitting on the saddle.

### Step 3

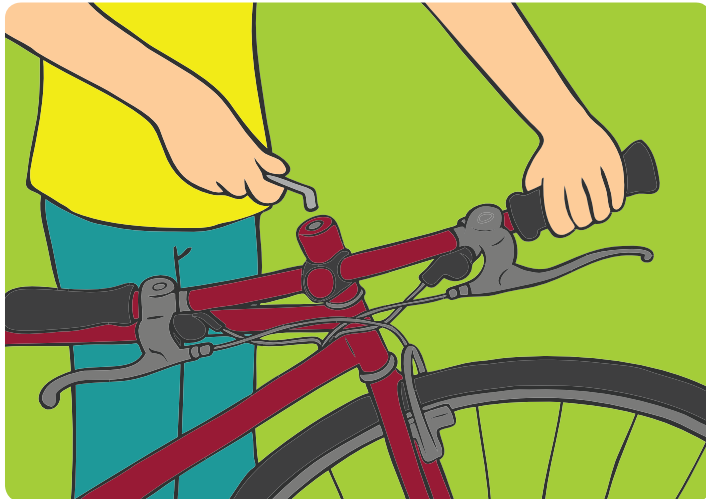
Some bikes have quick-release handles which you can operate to loosen the saddle in its stem, then pull it up or push it down to the correct height. Older bikes may have nuts underneath the saddle which can be loosened and tightened up using a spanner.



#### Step 4

The handlebars sit on a 'headset', which in turn slots into the bike's steering stem, which is part of the main frame of the bike.

There are all kinds of headsets, stems and handlebars, but they follow a similar principle: loosen nuts with Allen keys or spanners to pull the handlebars up and adjust the height, and tighten again when the correct height is reached. Spacers, little rubber rings, can also be fitted onto the stem which the headset sits on to increase the height of the handlebars.



Get your Cubs to have a look at their own bikes and see what tools they would need to adjust the angle and height of their own handlebars, and see what height is comfortable. They should also check the alignment, so that the frame, headset and wheels are all in one line.

# Refit a bicycle chain



## Maintenance point

It is always important to learn basic chain repair skills. Not only will you save paying a mechanic for simple faults, but you will also save yourself the risk of getting stranded!

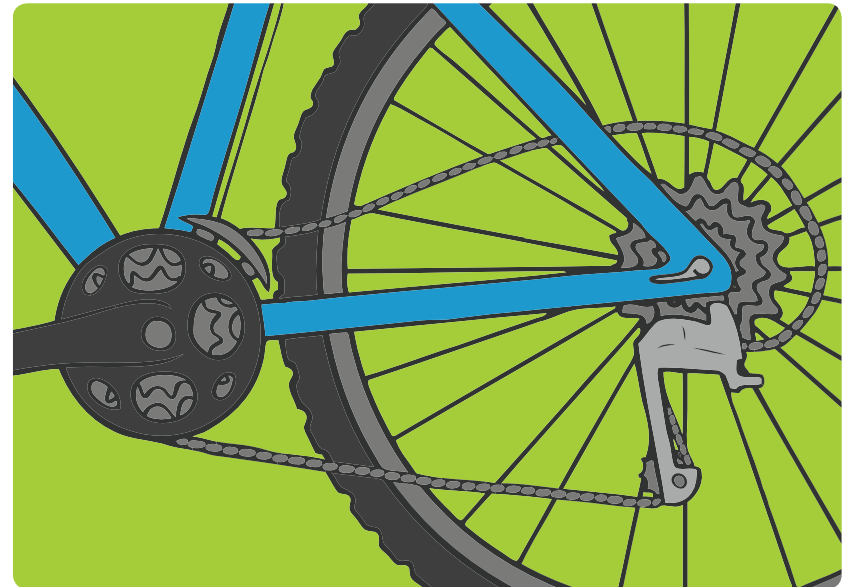


## Essential Kit

- Chain tool
- Pliers
- Bike lubricant (known as lube)
- Cloths or rags
- A bike stand if possible
- Pencil

## Step 1

Hook the chain onto the bottom/smallest sprocket (the pointed grooves in the chain) and pedal backwards. Put the bike on a stand or, if you don't have one, get your Leader to hold the rear wheel off the ground as you put the chain back on using a pencil rather than your fingers. Don't try and hook onto the top of the chain ring, always hook onto the bottom and pedal backwards.



### Step 2

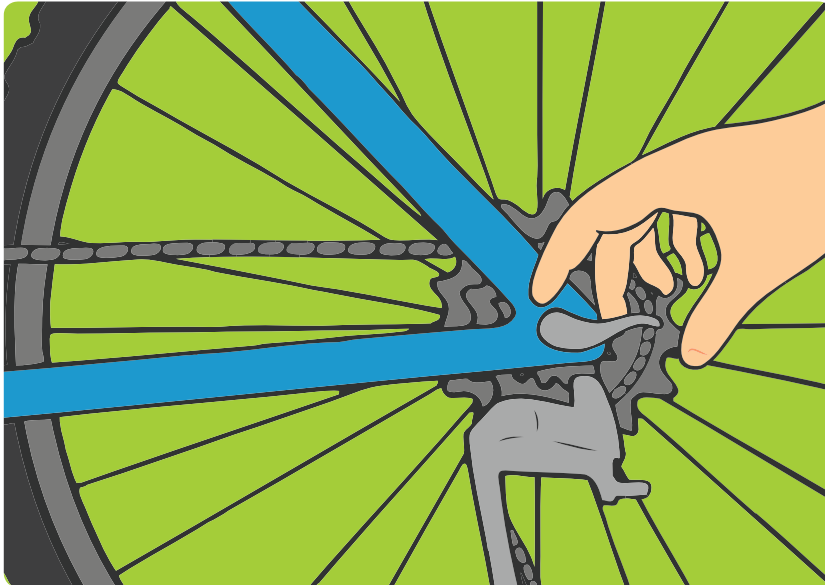
Now pedal forwards, changing gears until the chain pedals smoothly.

### Step 3

Sometimes the chain gets jammed between the smallest sprocket and the frame. If this happens then loosen the quick release by pulling the lever and undo the wheel nut to ease out the chain.

### Step 4

Loosen the wheel nut on the other side once you have pulled open the quick release. Now adjust the chain like before.



### Step 5

Now close the quick release, you should be able to close it completely. If it feels too tight (i.e you can't push it) loosen the wheel nut by the derailleur. Likewise, if it's too loose, then tighten the wheel nut.

### Step 6

Perform some final checks. Hold the handlebars firmly and turn the pedals with your hands. If you feel strong forward motion then the chain is fitted correctly.