

Name: _____ Learner Number: _____

Centre Name: _____ Centre Number: _____

Learner Work Booklet

for

Mechanical Systems in Bikes (117895)



This workbook was created by Breaking Cycles CIC in partnership with The Bikeability Trust as part of the widening participation project in 2022.

These resources are free to use and intended to be used, alongside L3 Bikeability training, as part of your alternative curriculum.

(Outcome 1) How does it work?

The picture below shows a pair of cable rim brakes. Complete the sentences to describe how they work.



When you pull the brake lever _____

The brake pads touch the _____

When you let go of the lever, _____

(Outcome 2) Is it time for a change?

Some components wear out fairly quickly and don't work properly, which can cause the bike to stop working properly, cause damage to other components or become dangerous. These are the components that we should check regularly and be prepared to replace fairly often. On the next page, there is a diagram of a bike, add labels, identifying the components that you would check regularly are and showing where abouts they are on the bike.

(Outcome 4) Bearings

Some components need to move freely as well as supporting weight. These components use bearings to achieve this. On the next page, there is a diagram of a bike, add labels, identifying two components that use bearings.

(Outcome 5) Springs

Springs are used in mechanical systems to absorb impacts and to maintain the tension of a cable when the tension is released. On the next page, there is a diagram of a bike, add labels, identifying two components that use springs. What does the spring do?

(Outcome 6 & 7) Reducing friction

Components that need to run smoothly should be lubricated in order for them to work properly and to prevent them from wearing out too quickly. On the next page, there is a diagram of a bike, add labels, identifying two components that need to be kept lubricated. Why do they need to run freely?

Friction is not always a problem that needs to be reduced, there are many components that rely upon friction for them to work properly. On the next page, there is a diagram of a bike, add a label, to show a component that relies upon friction for it to work properly.



(Outcome 8) Don't wear it out!

You have been looking at how components of a bike work and how to maintain them. Part of this maintenance has involved checking components for signs of wear and thinking about which ones might need replacing.

What can you do, as part of your maintenance routine, to make some of these parts last longer?

1.

2.

(Outcome 9) Lubrication

We have been thinking about applying lubrication to moving parts, why do these parts need lubrication?

(Outcome 10) Friction

We have identified components that use friction to perform an action and components where reducing friction helps them to work more effectively.

Why does a bike need friction in order for it to be able to work properly?
