Name: _____ Date: _____

Why Hills Need Low Gears

Circle group

Many bikes have gears. A rider can pick one. This matters most on a hill.

A chain links the pedals to the back wheel. The chain loops around gears. A gear is a wheel with teeth. A bike with many gears has a few at the pedals and a few at the back.

In a low gear, each turn of the pedals turns the back wheel a little. Pedaling is easy. This is good for a hill. The bike goes slowly, but the rider does not get tired.

In a high gear, each turn of the pedals turns the back wheel many times. Pedaling is harder. But the bike goes far with each push. This is good for a flat road or an easy downhill.

A rider uses a lever on the handlebars to change gears. The lever moves the chain.

Questions

1. What links the pedals to the back wheel?

_____

_____

2. Which gear is good for a hill?

_____

_____

3. In a high gear, what happens when the pedals turn once?

_____

_____

4. How does a rider change gears?

_____

_____

5. What is the price of easy pedaling in a low gear?

_____

_____

6. Why is a low gear a poor pick on a flat road?

_____

Words to know

gears: toothed wheels that work together to pass along motion
chain: a row of metal links joined together in a loop
pedals: the parts of a bicycle that you push with your feet
handlebars: the bars at the front of a bicycle that you hold and steer with

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Why Hills Need Low Gears

Triangle group

Many bicycles have gears, and a rider can choose among them. The choice matters most when the road turns uphill.

A bicycle chain connects the pedals to the back wheel. The chain loops around a toothed wheel at the pedals and another toothed wheel at the back. Those toothed wheels are the gears. A bike with several gears has a few of each, in different sizes.

In a low gear, the chain sits on a small gear at the pedals and a large gear at the back wheel. Each turn of the pedals makes the back wheel turn only a little. Pedaling feels easy, so a low gear is good for climbing a hill. The bike moves slowly, but the rider does not get worn out.

In a high gear, the chain sits on a large gear at the pedals and a small gear at the back. Now each turn of the pedals spins the back wheel many times. Pedaling takes more effort, but the bike goes far with every push. A high gear is good for a flat road or a long, easy downhill.

A rider changes gears with a lever on the handlebars. The lever moves the chain from one gear to another.

Questions

1. What connects the pedals to the back wheel?

_____

_____

2. Which gear is good for climbing a hill?

_____

_____

3. What happens in a high gear each time the pedals turn once?

_____

_____

4. How does a rider change from one gear to another?

_____

_____

5. What is the price of easy pedaling in a low gear?

_____

_____

6. Why would a rider on a flat road feel silly using a low gear?

_____

_____

Words to know

gears: toothed wheels that work together to pass along motion
chain: a row of metal links joined together in a loop
pedals: the parts of a bicycle that you push with your feet
effort: hard work that you put into something
handlebars: the bars at the front of a bicycle that you hold and steer with

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

Name: _____ Date: _____

Why Hills Need Low Gears

Square group

Many bicycles are equipped with gears, and a rider can choose among them depending on the terrain. The choice matters most when the road turns steeply uphill.

A bicycle chain connects the pedals to the back wheel. The chain loops around a toothed wheel at the pedals and another toothed wheel at the back, and those toothed wheels are the gears. A bicycle with several gears has a few of each, all in different sizes.

In a low gear, the chain sits on a small gear at the pedals and a large gear at the back wheel. Each turn of the pedals makes the back wheel turn only a little, so pedaling feels easy. That makes a low gear ideal for climbing a hill. The bike moves slowly, but the rider does not become exhausted.

In a high gear, the chain sits on a large gear at the pedals and a small gear at the back. Now each turn of the pedals spins the back wheel many times. Pedaling demands more effort, but the bicycle travels a long way with every push. A high gear suits a flat road or a long, gentle downhill.

A rider changes gears with a lever mounted on the handlebars, which moves the chain from one gear to another.

Questions

1. What connects the pedals to the back wheel?

_____

_____

2. Which gear is ideal for climbing a hill?

_____

_____

3. What happens in a high gear each time the pedals turn once?

_____

_____

4. How does a rider change from one gear to another?

_____

_____

5. What is the price of easy pedaling in a low gear?

_____

_____

6. Why would a rider on a flat road be unwise to use a low gear?

_____

_____

Words to know

gears: toothed wheels that work together to pass along motion
chain: a row of metal links joined together in a loop
pedals: the parts of a bicycle that you push with your feet
effort: hard work that you put into something
handlebars: the bars at the front of a bicycle that you hold and steer with

Talk together (every group has these)

1. Find one fact that every group read. How did your sheet say it?
2. What did your sheet tell you that you think another group's did not? Ask them.
3. What is one question about this topic that none of the sheets answered?

For the teacher: Why Hills Need Low Gears

Each student sheet carries a shape, not a level. The same topic and facts, written three ways.

Circle: Why Hills Need Low Gears

Easier · 141 words · Flesch-Kincaid grade 1.7

1. The chain.
2. A low gear.
3. The back wheel turns many times.
4. With a lever on the handlebars that moves the chain.
5. The bike goes slowly.
6. The pedals would spin fast but the bike would barely move.

Triangle: Why Hills Need Low Gears

This passage · 205 words · Flesch-Kincaid grade 4

1. The chain.
2. A low gear.
3. The back wheel spins many times.
4. With a lever on the handlebars that moves the chain.
5. The bike moves slowly.
6. The pedals would spin very fast but the bike would barely go. A higher gear moves the bike farther with each push.

Square: Why Hills Need Low Gears

Harder · 214 words · Flesch-Kincaid grade 5.7

1. The chain.
2. A low gear.
3. The back wheel spins many times.
4. With a lever on the handlebars that moves the chain.
5. The bicycle moves slowly.
6. The pedals would spin very fast while the bike barely moved, whereas a higher gear carries the bike farther with each push.