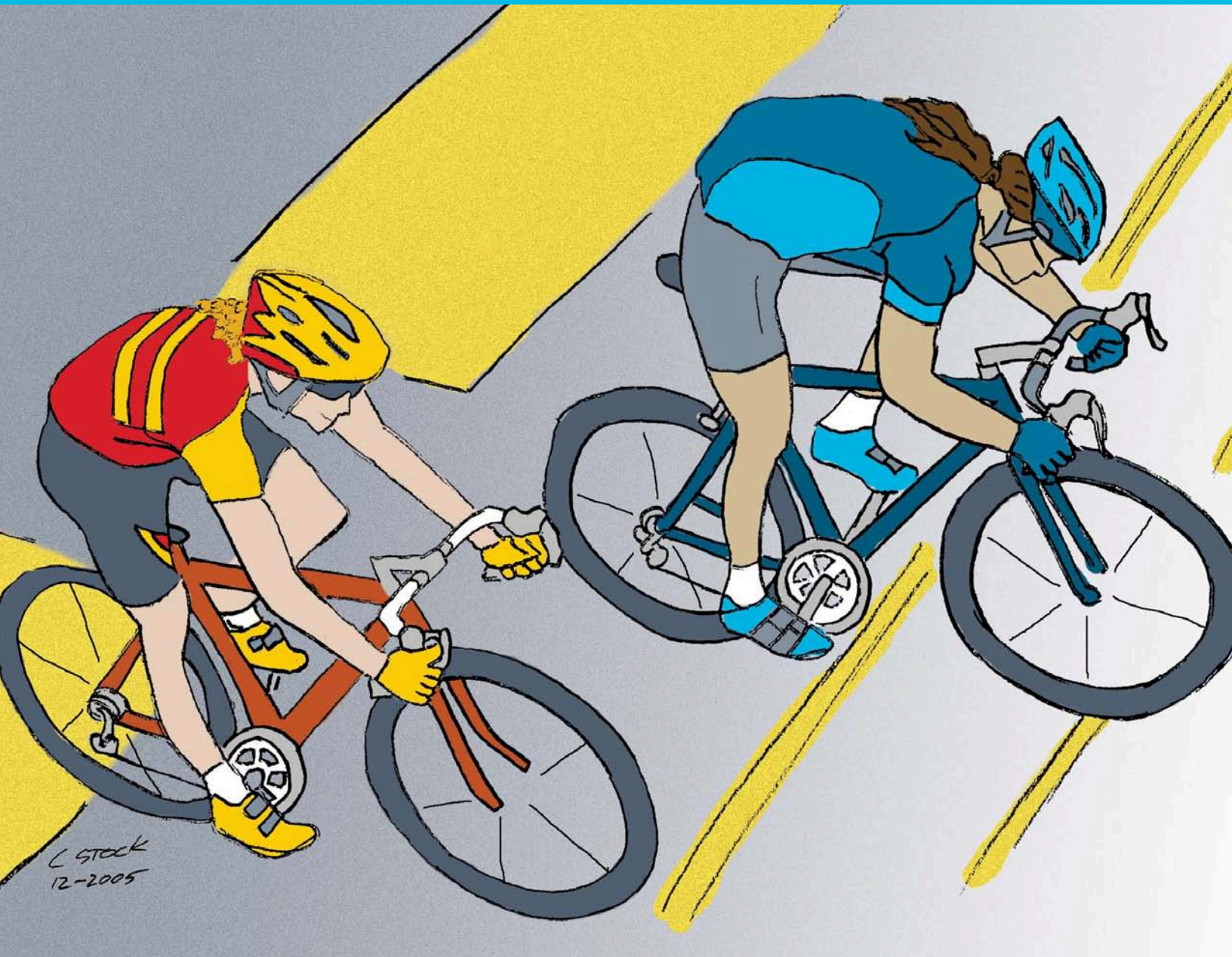


What makes a bicycle?



Educational Coloring Book



Society of
Women Engineers

PRESENTED BY THE MINNESOTA SECTION



Society of Women Engineers

ASPIRE • ADVANCE • ACHIEVE

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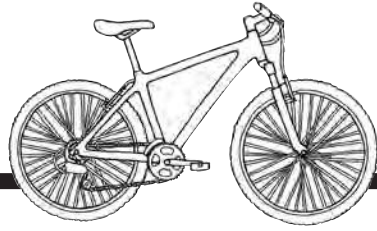
The Society of Women Engineers (SWE)
Professional Development Grants Program

SWE – Minnesota Section

ExxonMobil Foundation

MTS Systems Corporation

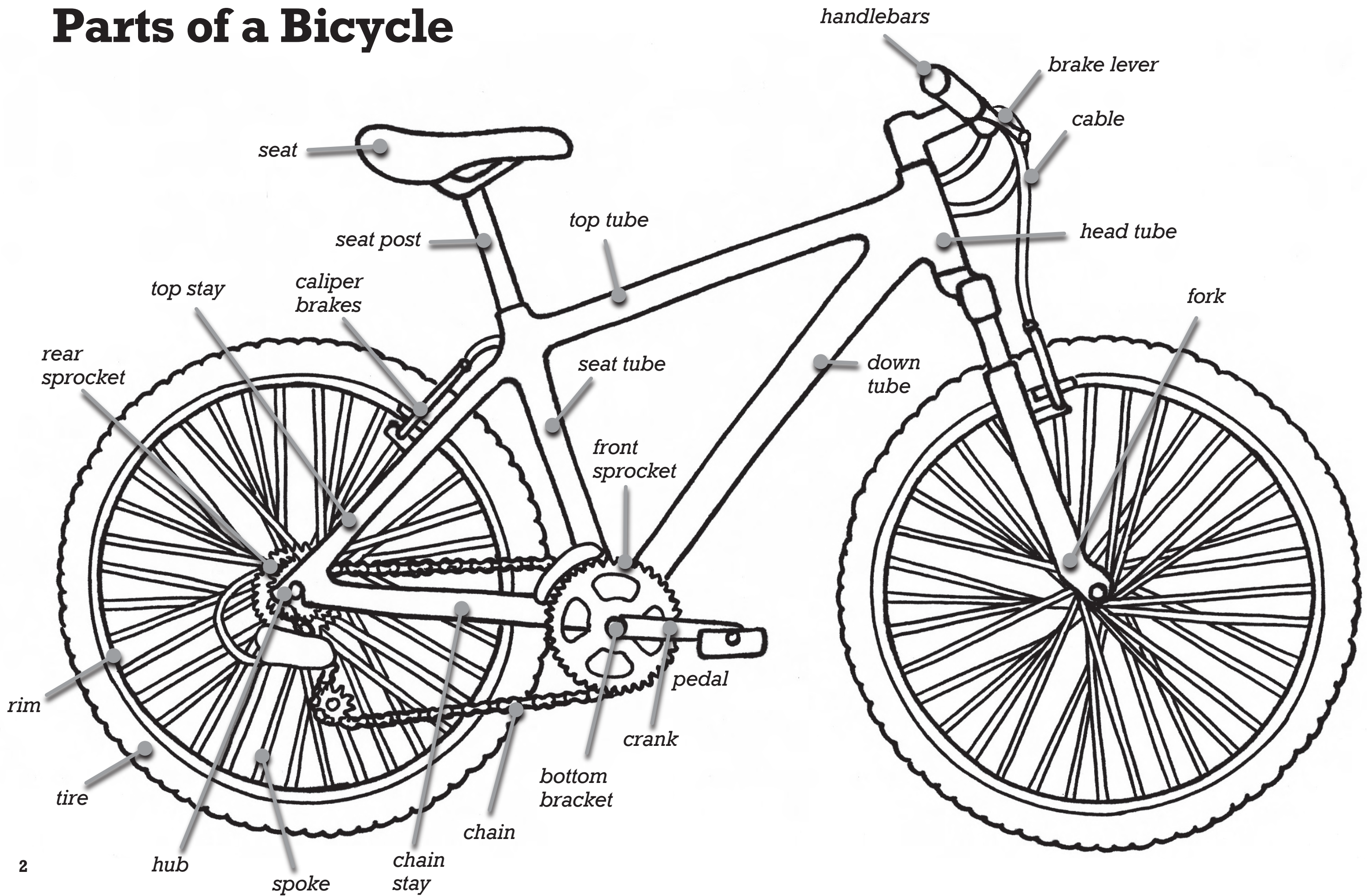
Guidant Corporation



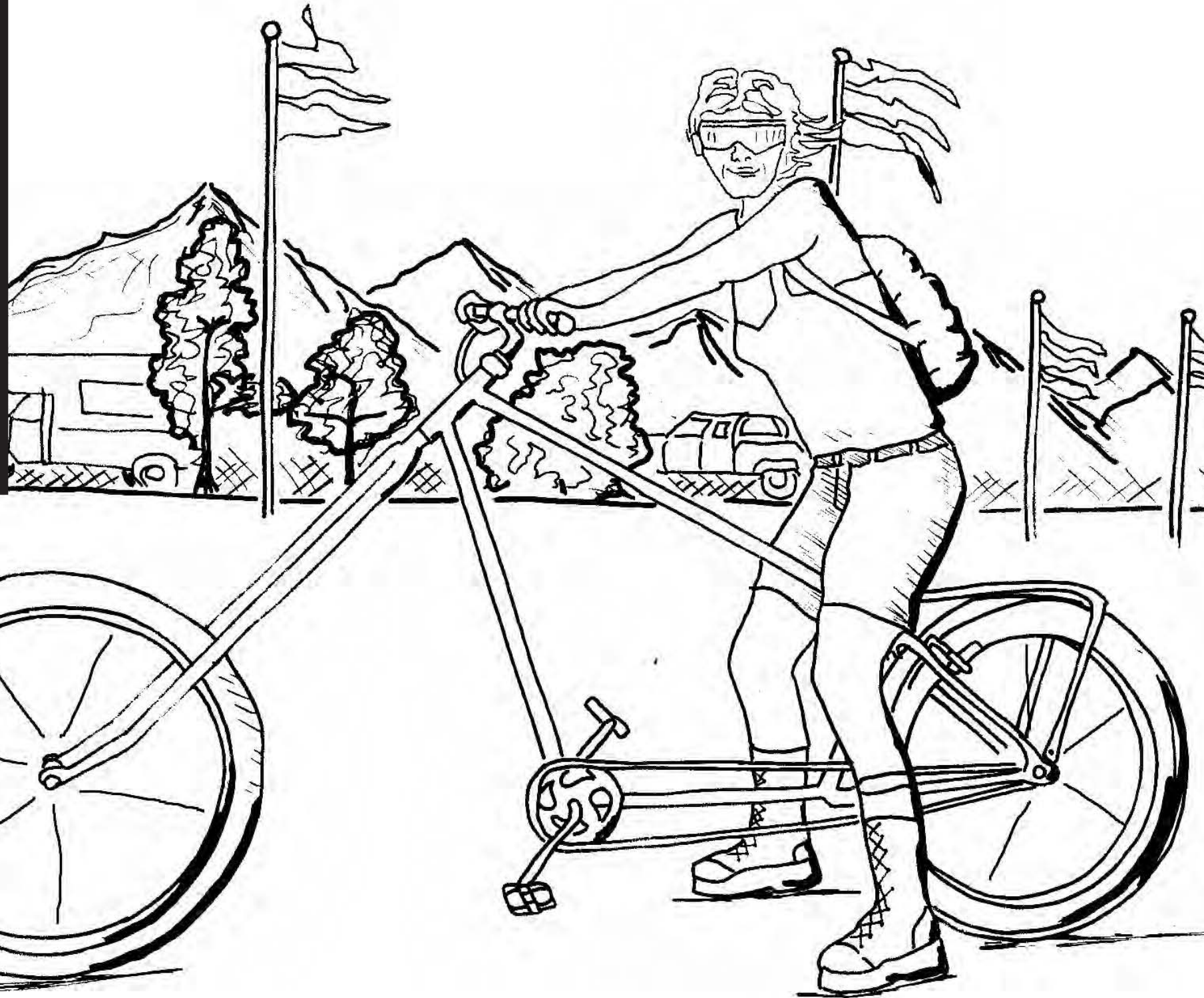
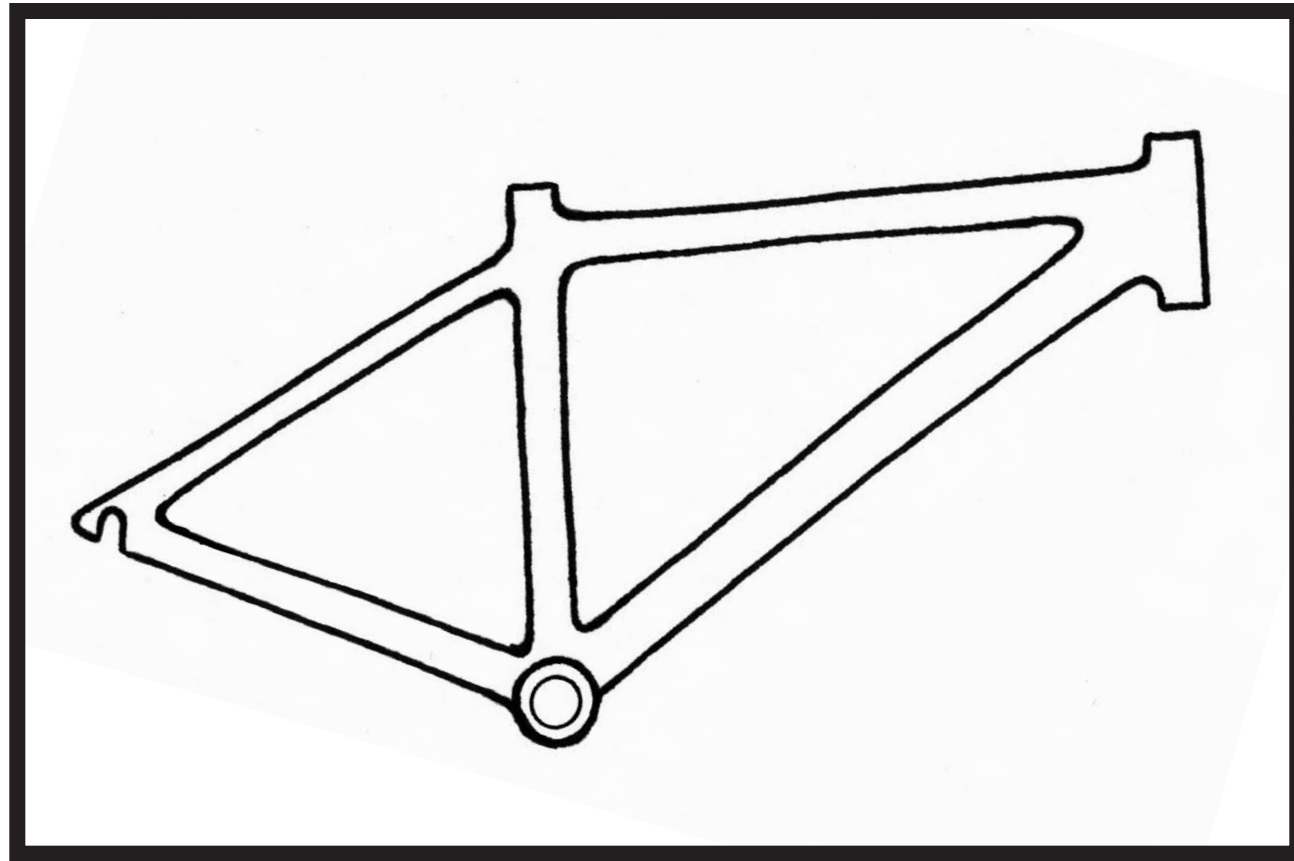
This coloring book is designed to be used in 4th–6th grade classrooms with the matching Teacher’s Guide.

For more information about the Society of Women Engineers and the “What makes a bicycle?” Educational Coloring Book, visit our website: www.swe-mn.org

Parts of a Bicycle



Bicycle Frame



Question

1. How does a bicycle stay upright while in motion?

Safety Tip

Always wear a helmet and make sure it fits properly.

The Bicycle Helmet Safety Institute has a webpage on fit:

<http://www.bhsi.org/fit.htm>

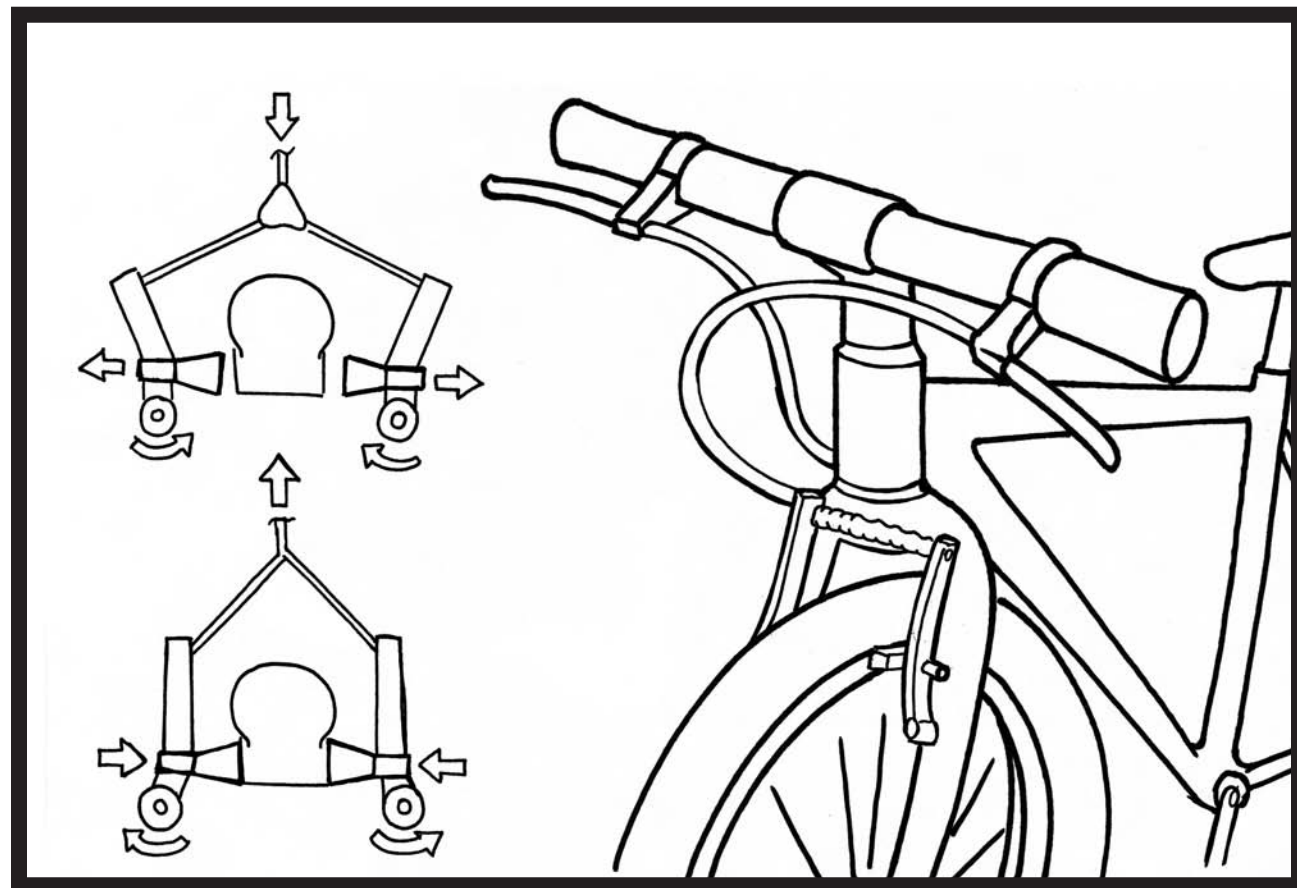
Bicycle Brakes

Question

2. This page shows two different types of brakes, can you name them? Are there any other types of brakes you can think of?

Safety Tip

Make sure that nothing will get caught in your bike chain, such as loose pant legs, backpack straps, or shoelaces.



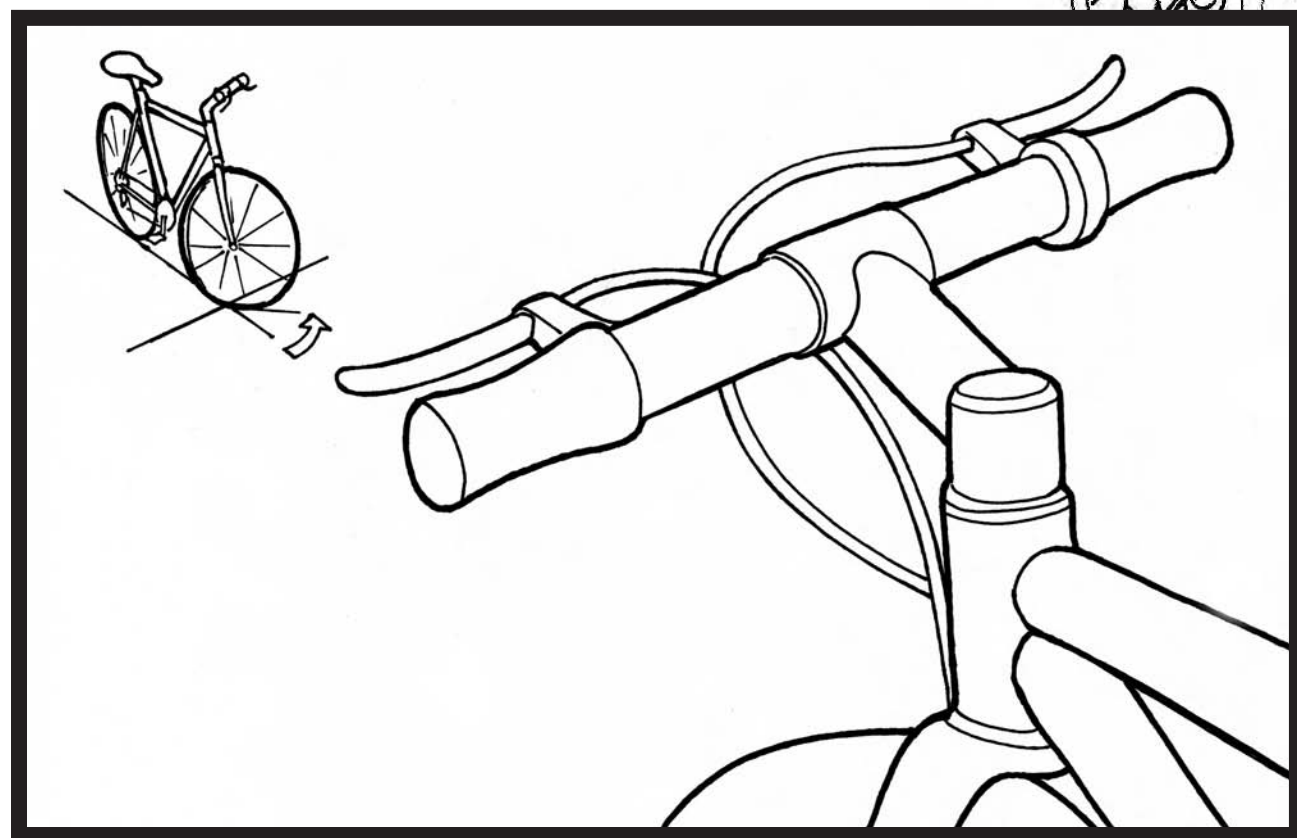
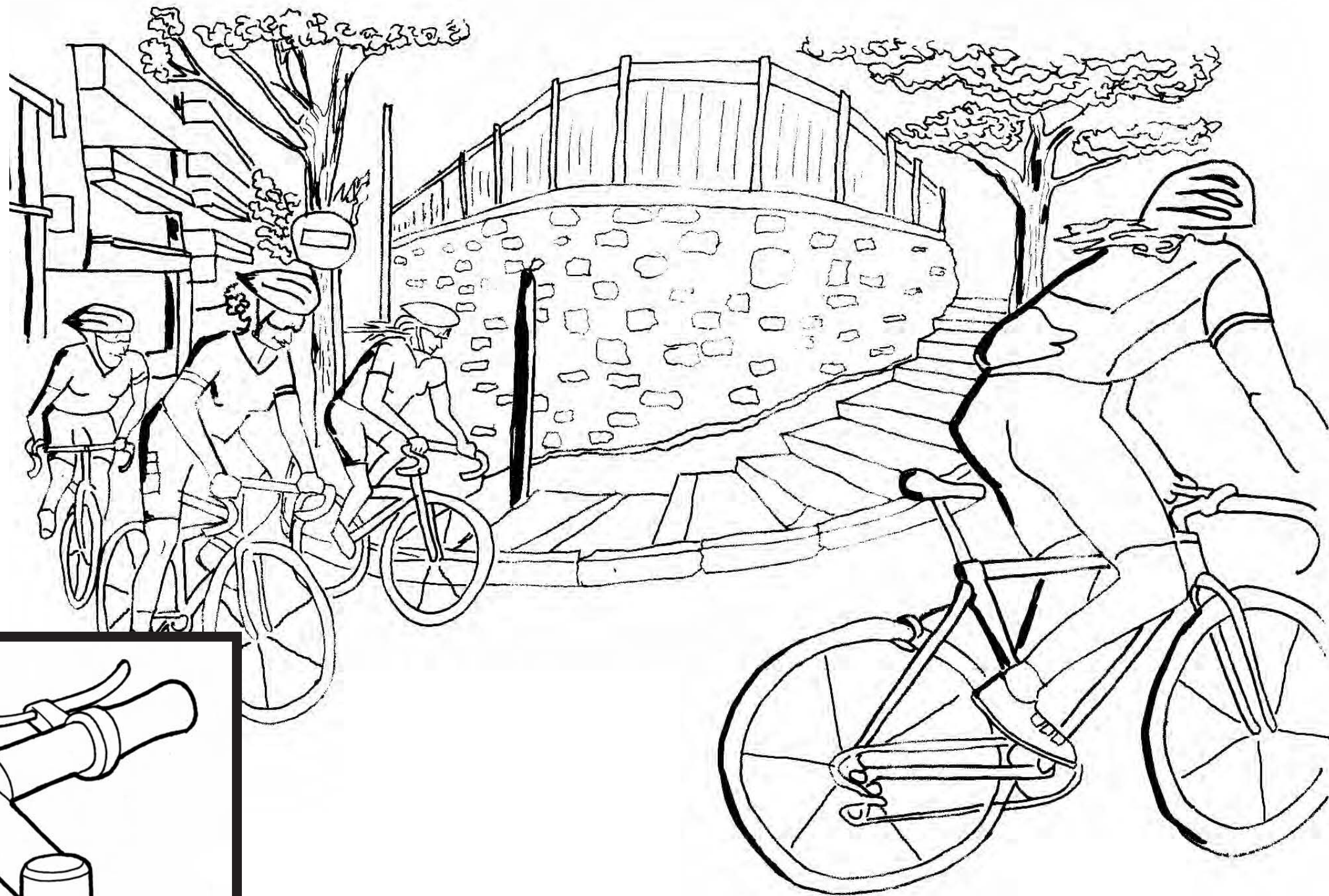
Bicycle Steering

Question

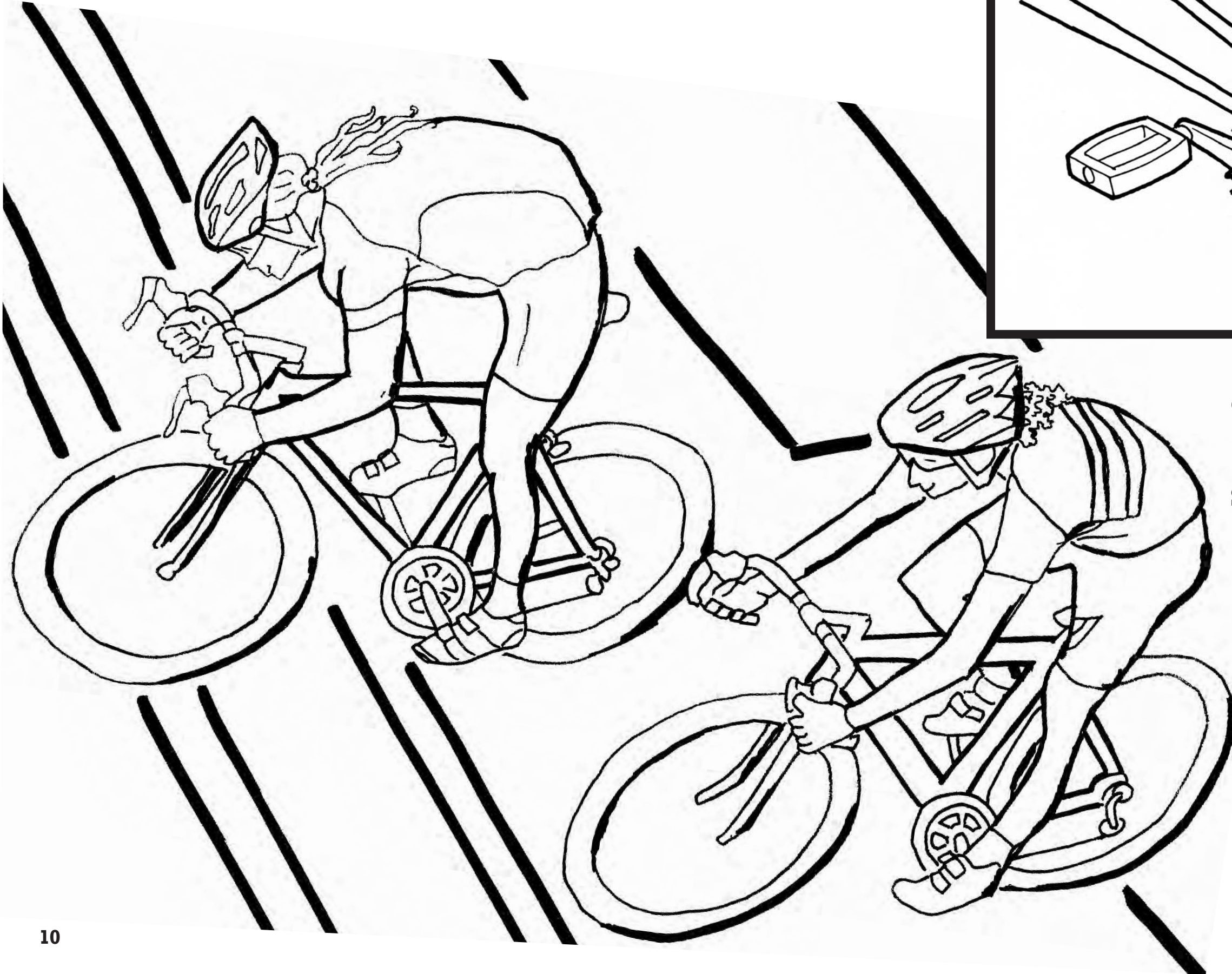
3. Can you name five different types of bicycles?

Safety Tip

Sneakers are the right shoes to wear when you bike. Sandals, shoes with heels, and cleats won't help you grip the pedals. Never ride barefoot!



Bicycle Pedals



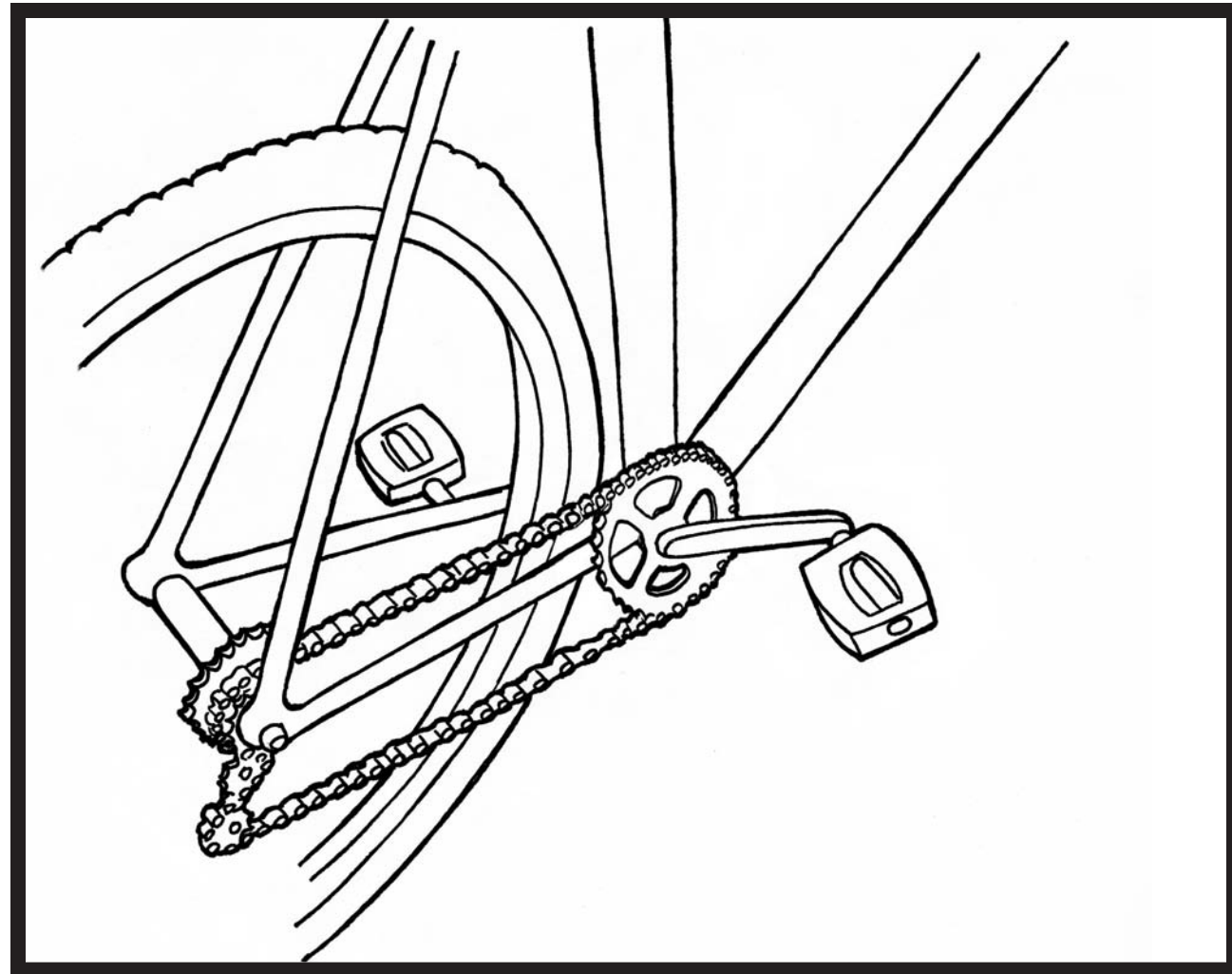
Question

4. What is the definition of a bicycle?

Safety Tip

Wearing bright clothes and putting reflectors on your bike will help other people on the road see you. Once they see you, they're less likely to run into you.

Bicycle Chain Drive



Question

5. Can you think of any other machines that use a chain drive?

Safety Tip

Avoid wearing headphones because the music can distract you from noises around you, such as a car blowing its horn so you can get out of the way.

Safety Tip

Make sure your bike is the right size for you: When you stand straddling the top bar of your bike so that both feet are flat on the ground, there should be 1 to 3 inches of space between you and the top bar.



Bicycle Safety Checklist

Have your Mom or Dad run through this safety checklist with you before you ride:

- Make sure your seat, handlebars, and wheels fit tightly.**
- Check and oil your chain regularly.**
- Check your brakes to be sure they work well and aren't sticking.**
- Check your tires to make sure they have enough air and the right tire pressure.**

The safety tips in this book and more can be found at http://kidshealth.org/kid/watch/out/bike_safety.html or ask your local librarian for help finding books on bikes and bike safety.

Answers

These questions can be answered as a group during the coloring activity. Here are the answers:

1. How does a bicycle stay upright while in motion?

At slower speeds the rider provides balance. At higher speeds precession, or gyroscopic, forces keep the bicycle upright.

2. This page shows two different types of brakes, can you name them? Are there any other types of brakes you can think of?

The technical detail shows caliper brakes, the downhill racer's bike has disc brakes. Another type is the backpedaling, or coaster brake.

3. Can you name five different types of bicycles?

BMX, 10-speed, Mountain, Tandem, Recumbent, Stationary, Racing, Touring, there are many more.

4. What is the definition of a bicycle?

Bi·cy·cle (noun): a vehicle with two wheels tandem, a steering handle, a saddle seat, and pedals by which it is propelled.

(from <http://www.m-w.com/cgi-bin/dictionary> — Merriam Webster dictionary on-line)

5. Can you think of any other machines that use a chain drive?

Chain saw, garage door opener, and more.

Book References

Greg Lemond's Complete Book of Bicycling

The Lance Armstrong Performance Program: Seven Weeks to the Perfect Ride

Bicycle by Larry Hills

Bicycle Safety by Rudolph Steiner

Go Fly a Bike! The Ultimate Book of Bicycle Fun, Freedom, and Science by Bill Haduch

Kids' Easy Bike Care: Tune-Ups, Tools and Quick Fixes by Steve Cole

Bicycle Science Projects: Physics on Wheels by Robert Gardner

Bicycling by John Francis

Bicycling for Fitness, Vol. 1 by Gustav Mark Gedatus

Web Links

www.ibike.org/library/science.htm

www.bsn.com/Cycling/HBS.html

library.thinkquest.org/J002670

www.bicyclopedia.org

www.exploratorium.edu/cycling

www.analyticcycling.com

www.teacher.scholastic.com/lessonrepro/reproducibles/profbooks/biketech.htm

www.swe-mn.org



Society of Women Engineers

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“There are few things that you can’t do as long as you are willing to apply yourself.”

— *Greg Lemond*

“Nothing compares to the simple pleasure of a bike ride.”

— *John F. Kennedy*

“If you worried about falling off the bike, you’d never get on.”

— *Lance Armstrong*

“When I see an adult on a bicycle, I do not despair for the future of the human race.”

— *H.G. Wells*

“Get a bicycle. You will not regret it if you live.”

— *Mark Twain, “Taming the Bicycle”*

These quotes are from the following websites: <http://www.quotegarden.com/bicycling.html>,
http://en.thinkexist.com/quotes/Greg_Lemond, http://en.thinkexist.com/quotes/Lance_Armstrong

