INSTITUTE OF
READING
DEVELOPMENT

Nonfiction

Program 6

LS version

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Lesson 1

The Power of Music

Most people enjoy music in some form. Whether you're rocking out to your favorite band, taking guitar lessons, or even just singing in the shower, music probably plays a role in your life. But music has benefits that go far beyond pure entertainment. Both playing and listening to music can boost brain development and improve your overall health.

Playing Music: A Workout for Your Brain

Learning to play an instrument has a big impact on brain development. Musical training strengthens the parts of the brain that process sound and language. Studies show that children who study music from an early age have an easier time learning to read. This is because music has already trained their brains to distinguish between different sounds. For the same reason, playing music can also make it easier to learn a new language. In fact, learning to read music *is* learning another language.

Playing music also improves fine motor skills. These skills require a joint effort between the brain and the small muscles in the hands and wrists. Picture playing the piano. Moving your fingers across the keyboard and playing different notes with each hand at the same time is complicated! As you practice, your brain gets very good at knowing which muscles to move and when. This makes you a better piano player, but it also improves your overall balance and coordination.

Listening to Music: Medicine for Body and Soul

Musicians aren't the only ones who benefit from music. Simply being a music fan can improve your heart health. Listening to music can reduce stress, regulate your heart rate, and lower your blood pressure. How can that be? Well, the part of the brain that processes sound is the same area that controls your heartbeat and breathing. Without you even knowing it, music gets you focused on your breath and calms you down.

Listening to music also improves focus and memory. If you've ever had music on in the background while studying, you may have noticed this. When you hear music, both the left and right sides of your brain are activated. As this happens, your brain develops new pathways between the two sides. This makes it easier to learn and remember information.

Most of all, music makes us happier! When we listen to music, our brains release chemicals called endorphins. Endorphins give us a feeling of excitement and joy. Surprisingly, this works even when listening to sad songs. Listening to music—happy or sad—helps us work through our emotions and feelings. When we hear a song that sums up exactly how we're feeling, we feel better.

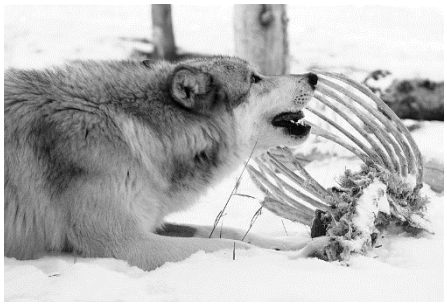
Lesson 2

Paw-some Facts About Dogs and Wolves

Did you know that your pet dog shares over 98% of her DNA with a wolf? With that much in common, it's not surprising that the two animals are similar. What might surprise you, however, is the many ways dogs and wolves are unlike each other. It turns out that a DNA difference of just 2% can have a big impact on both physical appearance and behavior.

Dogs and wolves have many physical similarities and differences. Both have sharp teeth and powerful noses. In fact, both can smell about 100 times better than humans can! However, wolves tend to have larger skulls and bigger brains than dogs. And while dogs come in a variety of shapes, sizes and colors, most wolves look the same as one another. For example, you'd never find a wolf with spots like a Dalmatian or a squished face like a pug.

The biggest difference between wolves and dogs is their behavior. They do have a few traits in common. For example, both are social animals and will chase prey when they see it moving. But the similarities in behavior end there. Dogs are domesticated. They've been living with humans for thousands of years. This makes them friendly, curious, and easy to train. Wolves, by contrast, are wild animals. Even if you raised one from a pup, it would be aggressive and might even attack you.



Down the Hatch, Ellie Attebery, CC BY 2.0 <https://creativecommons.org/licenses/by/2.0>, via Wikimedia Commons

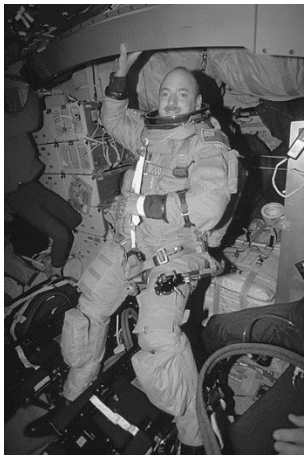
Comparison

Dogs	Both	Wolves

Space: Cold, Dark and Empty

There are many wonderful stories about space exploration. After all, who isn't excited about the idea of traveling at warp speed or meeting an alien? These stories are fun, but they're just fiction. In reality, space exploration has more downsides than benefits, and it isn't worth the cost.

First, it makes no sense to explore space because it's dangerous for humans to live there. Staying in space for even six months has terrible effects on the body. Astronauts suffer from bone loss, heart problems, and a higher risk of cancer. We have no idea what additional health risks a longer stay in space might pose. Even if there were a planet out there that humans could live on, we'd never survive the journey.



Astronaut Scott Kelly spent a total of 520 days in space. Afterward, testing revealed changes in Kelly's genes.

Space exploration is also incredibly expensive. NASA's annual budget is a whopping $24 billion! Even one rocket launch costs a billion dollars. That money could feed millions of starving people. It could provide shelter and medical aid to people impacted by natural disasters. It could send thousands of kids to college. Why waste money on space when we have so many problems here at home that need our attention?

Earth's moon: a large, lifeless rock.

Finally, people interested in space say they want to discover "what's out there." But the truth is, there's nothing out there. According to NASA, only about 0.00000000000000000042 percent of the universe contains any matter. The rest of it is just cold, dark, empty space. After decades of space exploration, we haven't found any alien life. And we haven't found useful resources either. It's time we realized that everything beautiful and important is right here on Earth.

Active Reading in Textbooks

- **Before you read:** Preview the section:
  - Read the section overview & intro paragraph.
  - Figure out how the section is organized.
  - Ask yourself: What am I going to learn about?
- **While you read:** Track main ideas & supporting details.
- **After you read:** Review what you've read.

LESSON 3

EATING IN AN ECOSYSTEM

reading guide

WHAT YOU WILL LEARN:

- Energy gets transferred from one organism to another through eating.
- Food chains and food webs show how energy moves through an ecosystem.

VOCABULARY:

- producers
- consumers
- decomposers
- food chain
- primary consumer
- secondary consumer
- tertiary consumer
- food web

Eastern chipmunk with its cheek pouches full of food

You wake up and go to the kitchen for breakfast. Maybe you eat eggs, or cereal and milk, or just a piece of fruit. Your cat is hungry too, so you open a can of tuna fish and plop it in the food bowl. Though you might not be aware of it, there are other things eating in the kitchen too. The houseplant on the windowsill is making food out of the sunlight shining in. And that old sandwich that's been in the back of the fridge for a month? The mold that's growing on it is feasting on the bread!

Everything alive has to eat. All organisms, or living things, need energy to grow, move around, stay warm, and even to breathe. The nutrients in food provide all living things with the energy they need to stay alive and functioning.

WHAT ORGANISMS EAT

Did you know that the sandwich in your lunch comes from energy 93 million miles away from Earth? Most of the energy that becomes food starts in the sun. Then, that energy gets transferred from one organism to another through eating.

Every organism plays a role in moving energy and nutrients through an ecosystem. As one living thing feeds on another, it absorbs the energy and nutrients stored in what it's eating. Depending on their role, organisms are classified as producers, consumers, or decomposers.

This orange tree is a producer.

Producers Producers are organisms that take energy from the sun and transform it into their own food. On land, most producers are plants, like trees, grass, vegetables, and grain. Other producers can be found in water. For example, algae are small organisms that grow on the surface of lakes and oceans. Producers provide the oxygen and food that other living things need for survival.

Algae cover the surface of a lake.

Consumers **Consumers** are not able to make their own food, so they eat other organisms to get energy and nutrients. Animals are consumers, including butterflies, dolphins, leopards, and humans. Some eat producers like plants, some eat other animals, and some eat both producers and consumers. When consumers eat another living thing, they absorb the energy and nutrients stored in it. That helps the consumer carry out its life processes.

A cheetah hunting for food

Decomposers Organisms that eat the waste products and dead remains of plants and animals are called **decomposers**. This category includes worms, bacteria, and fungi. They are also nature's recyclers, transferring important elements like oxygen, nitrogen, and carbon back into the environment. Other living things, including both producers and consumers, need these elements for survival. For example, an earthworm returns nutrients to the soil so that plants can grow.

These mushrooms are breaking down the nutrients in the dead tree trunk.

READING CHECKPOINT **What important role do decomposers play in an ecosystem?**

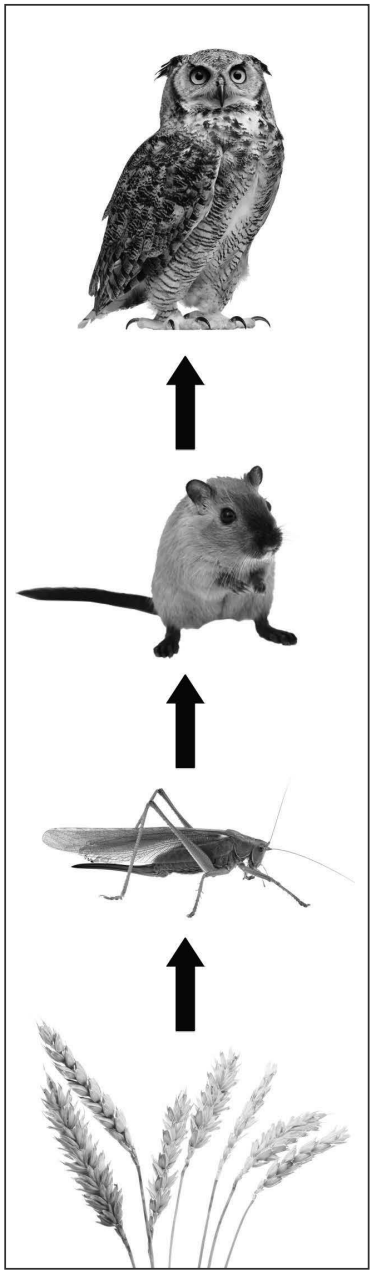
■ HOW EATING CONNECTS ORGANISMS

Eating is one way that organisms in an ecosystem are connected. When one organism eats another, it moves energy through the ecosystem. There are two ways to visualize these connections: a food chain and a food web.

Food Chains A **food chain** shows us how one organism eats another in a linear sequence. Every link in a food chain relies on the links that come before it. For example, in the diagram to the right, the grasshopper eats the wheat, the mouse eats the grasshopper, and the owl at the top of the chain eats the mouse. In all food chains, the bottom is made of the producers that absorb energy from the sun and transform it into food for consumers.

In a food chain, consumers are broken into three categories according to what they eat. **Primary consumers** eat producers. For example, rabbits eat grass, so they are primary consumers. Some other primary consumers are insects, squirrels, deer, and giraffes. **Secondary consumers** eat other consumers. Foxes eat rabbits, so they are secondary consumers. **Tertiary consumers** eat secondary consumers. Mountain lions eat foxes, so they are tertiary consumers. Since no consumers eat mountain lions, they are at the top of the food chain.

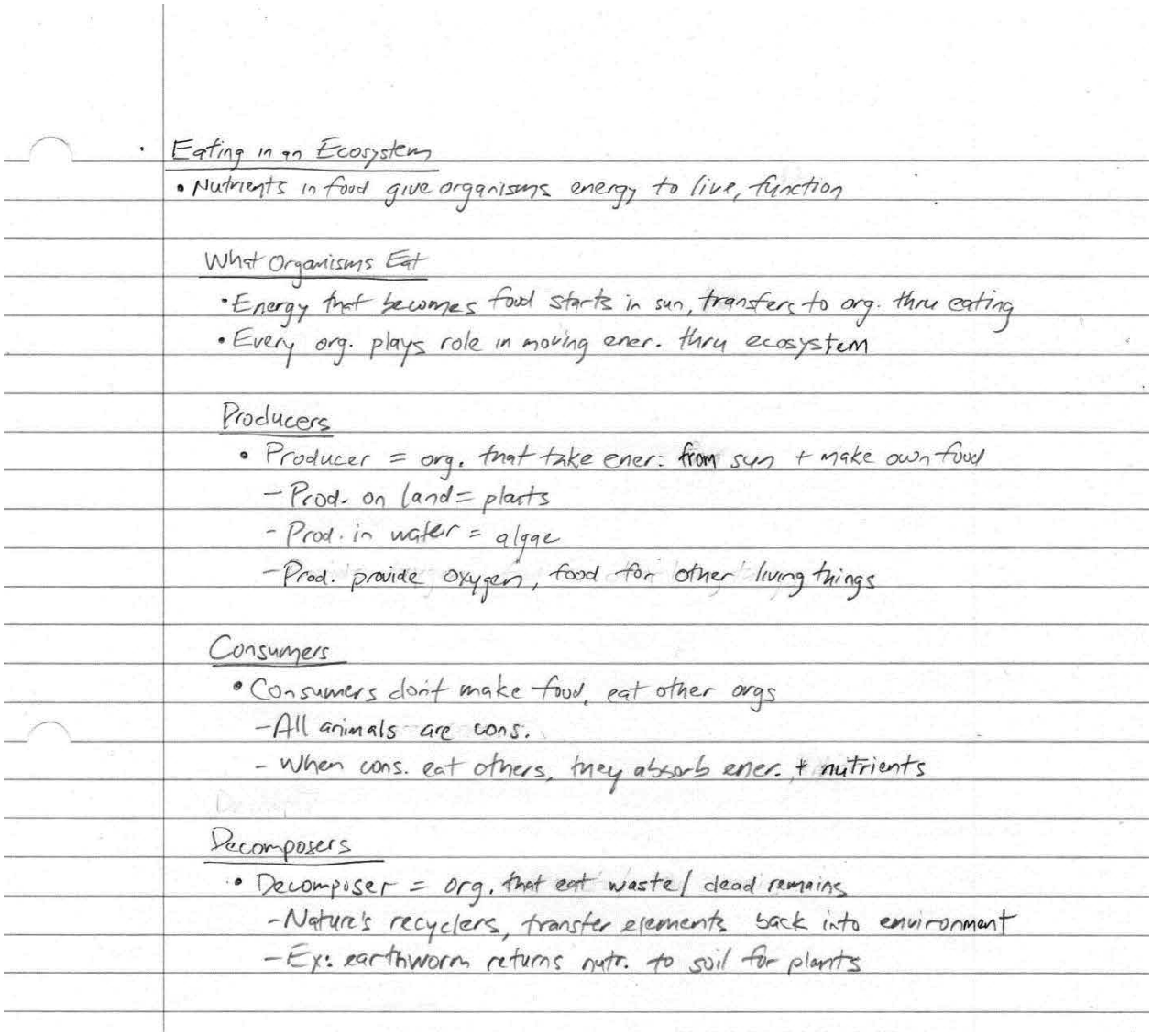
In this food chain, which animal is a primary consumer? Secondary? Tertiary?



Lesson 5

Taking Notes in Textbooks

- Write and underline each heading.
- Write down the main idea & supporting details for each paragraph.
- Keep your notes short and easy to read.



Eating in an Ecosystem
• Nutrients in food give organisms energy to live, function

What Organisms Eat
• Energy that becomes food starts in sun, transfers to org. thru eating
• Every org. plays role in moving ener. thru ecosystem

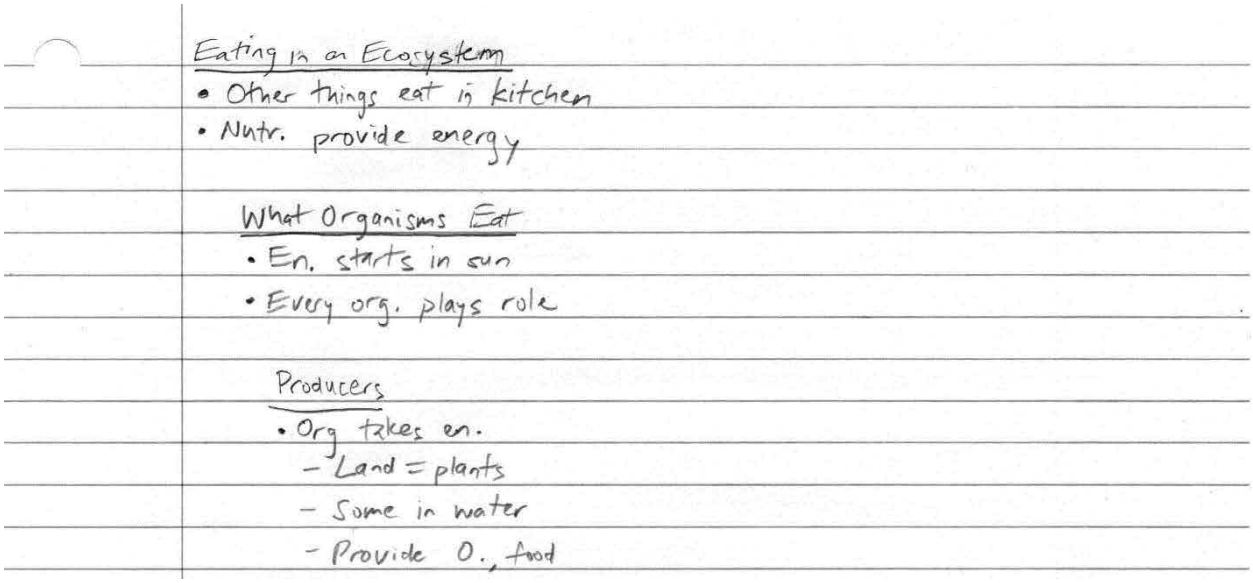
Producers
• Producer = org. that take ener. from sun + make own food
- Prod. on land = plants
- Prod. in water = algae
- Prod. provide oxygen, food for other living things

Consumers
• Consumers don't make food, eat other orgs
- All animals are cons.
- When cons. eat others, they absorb ener. + nutrients

Decomposers
• Decomposer = org. that eat waste / dead remains
- Nature's recyclers, transfer elements back into environment
- Ex: earthworm returns nutr. to soil for plants

What's wrong with these notes?

Sample 1:

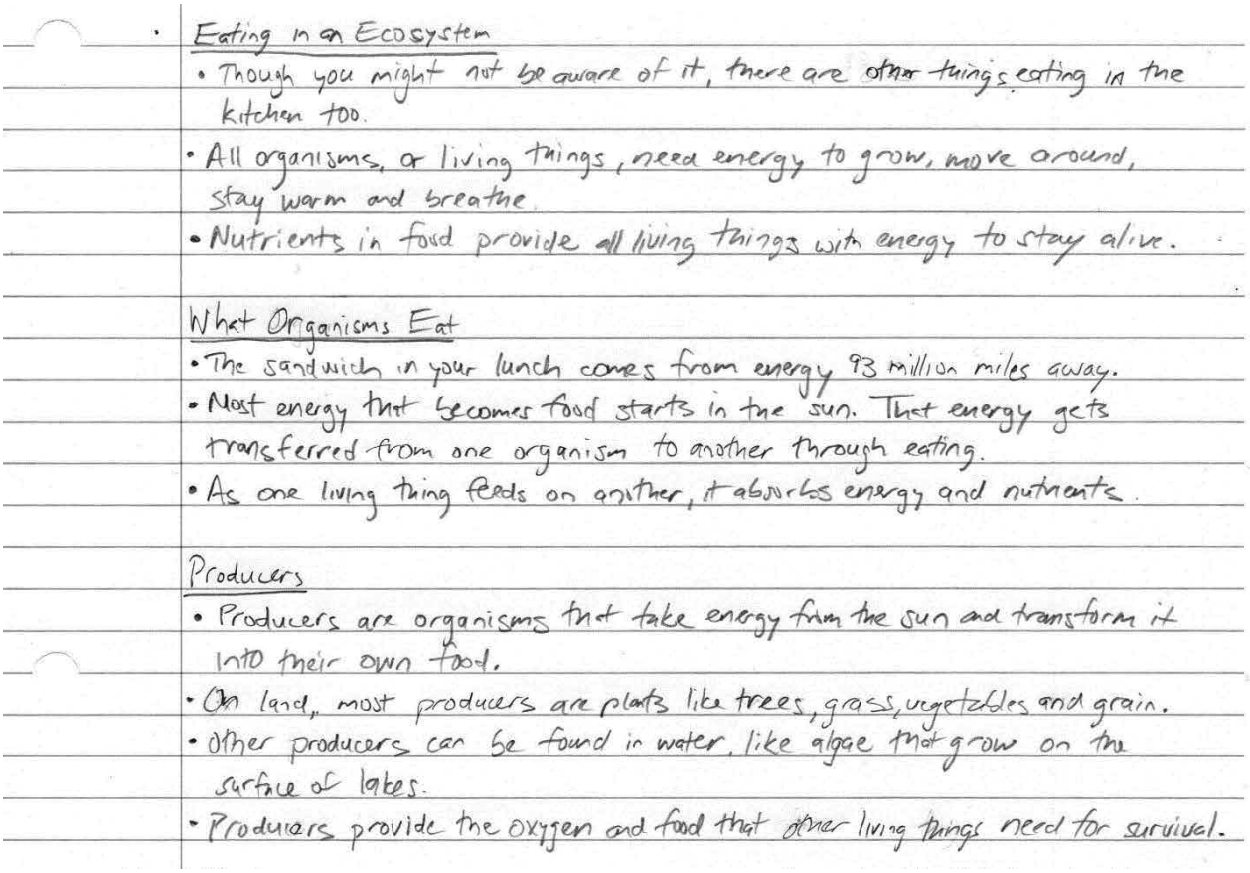


Eating in an Ecosystem
- Other things eat in kitchen
- Nutr. provide energy

What Organisms Eat
- En. starts in sun
- Every org. plays role

Producers
- Org takes en.
  - Land = plants
  - Some in water
  - Provide O., food

Sample 2:



Eating in an Ecosystem
- Though you might not be aware of it, there are other things eating in the kitchen too.
- All organisms, or living things, need energy to grow, move around, stay warm and breathe.
- Nutrients in food provide all living things with energy to stay alive.

What Organisms Eat
- The sandwich in your lunch comes from energy 93 million miles away.
- Most energy that becomes food starts in the sun. That energy gets transferred from one organism to another through eating.
- As one living thing feeds on another, it absorbs energy and nutrients.

Producers
- Producers are organisms that take energy from the sun and transform it into their own food.
- On land, most producers are plants like trees, grass, vegetables and grain.
- Other producers can be found in water, like algae that grow on the surface of lakes.
- Producers provide the oxygen and food that other living things need for survival.

Reading Speed Grids

***Swindle*:** 8 words per line

# of lines	Reading Speed
1	8
2	16
3	24
4	32
5	40
6	48
7	56
8	64
9	72
10	80
11	88
12	96
13	104
14	112
15	120

# of lines	Reading Speed
16	128
17	136
18	144
19	152
20	160
21	168
22	176
23	184
24	192
25	200
26	208
27	216
28	224
29	232
30	240

# of lines	Reading Speed
31	248
32	256
33	264
34	272
35	280
36	288
37	296
38	304
39	312
40	320
41	328
42	336
43	344
44	352
45	360

# of lines	Reading Speed
46	368
47	376
48	384
49	392
50	400
51	408
52	416
53	424
54	432
55	440
56	448
57	456
58	464
59	472
60	480

***All of the Above*:** 10 words per line

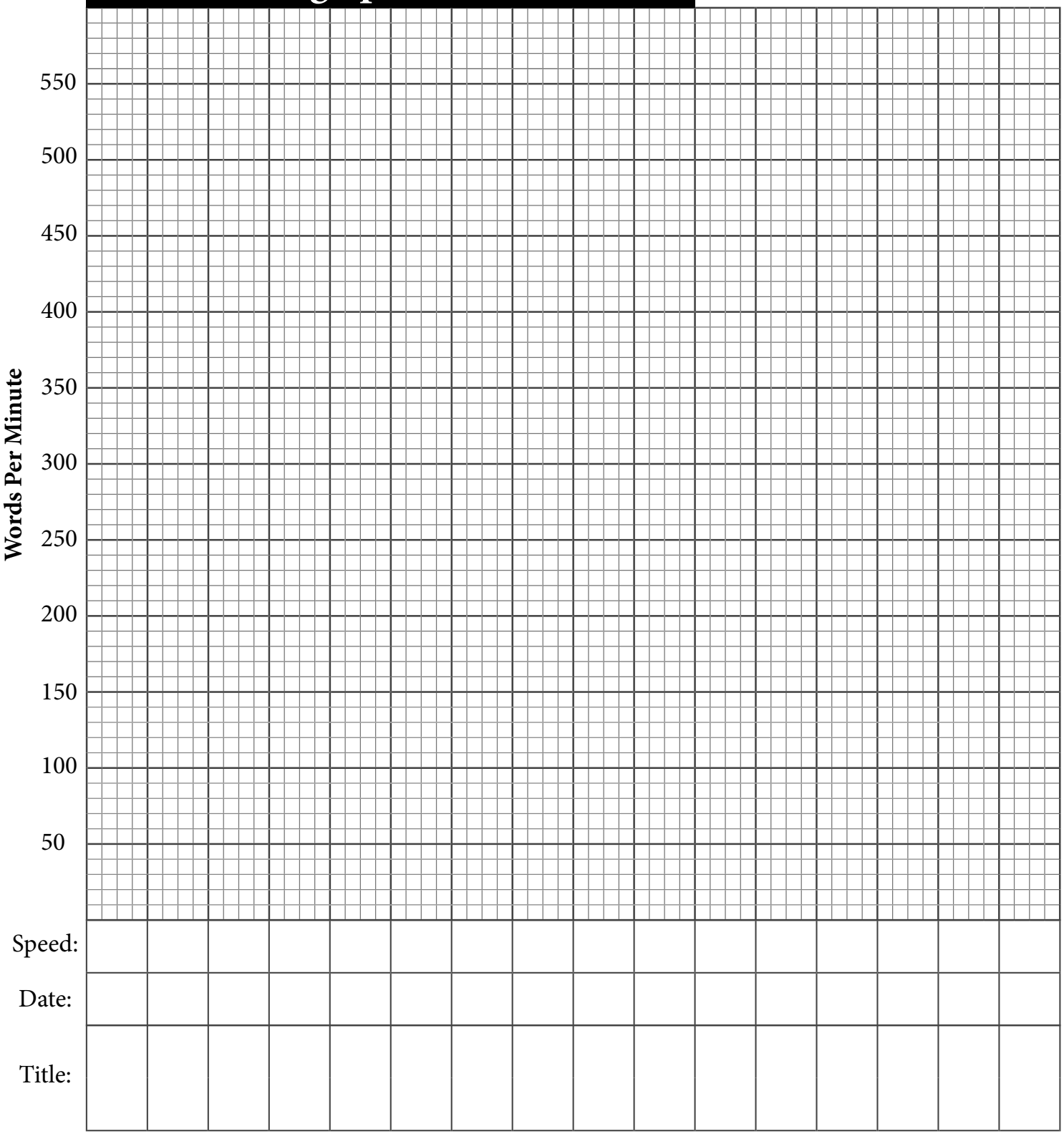
# of lines	Reading Speed
1	10
2	20
3	30
4	40
5	50
6	60
7	70
8	80
9	90
10	100
11	110
12	120
13	130
14	140
15	150

# of lines	Reading Speed
16	160
17	170
18	180
19	190
20	200
21	210
22	220
23	230
24	240
25	250
26	260
27	270
28	280
29	290
30	300

# of lines	Reading Speed
31	310
32	320
33	330
34	340
35	350
36	360
37	370
38	380
39	390
40	400
41	410
42	420
43	430
44	440
45	450

# of lines	Reading Speed
46	460
47	470
48	480
49	490
50	500
51	510
52	520
53	530
54	540
55	550
56	560
57	570
58	580
59	590
60	600

Reading Speed Tracker



Conducting a Timing in a Non-Class Book

1. First figure out how many words per line your book has. Choose a full line of text (not a short or indented line). Count all the letters, punctuation marks, and spaces in that line, divide by 6, and round to the nearest whole number. That is the average words per line for your book.

2. In your book, mark where you'll begin reading and read for exactly one minute.

3. Count the number of lines you read during the minute. Multiply the number of lines by the number of words per line from Step 1. This is your reading speed. For example, if you read 16 lines in a book that has 11 words per line, your reading speed would be 16 x 11, or 176 words per minute.