INSTITUTE OF
READING
DEVELOPMENT

Nonfiction and Study Skills

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Active Reading in Nonfiction

- **Before you read:** Preview:
  - Read the title and introduction.
  - Figure out how the article is organized.
  - Ask yourself: What am I going to learn about?
- **While you read:** Track main ideas and supporting details.
  - Use LSU/SSU.
  - Ask yourself questions.
  - Do tellbacks.
- **After you read:** Review what you've read.

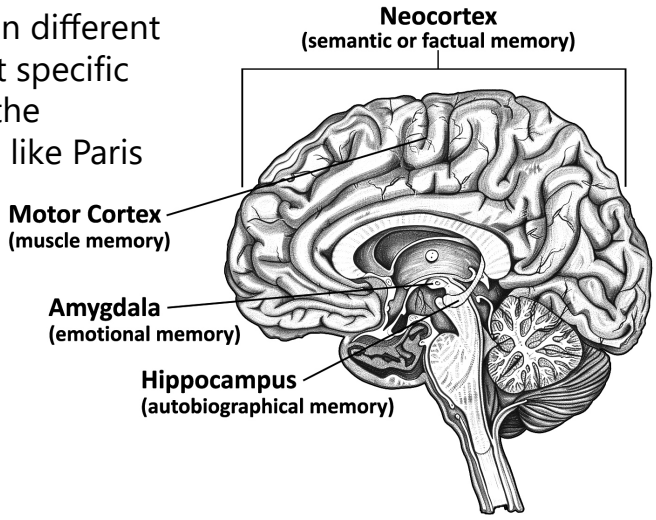
Memory Matters: How We Remember & How We Forget

In 1985, musician Clive Wearing entered the hospital with a brain infection and left with severe memory loss. He couldn't remember important life events like how he met his wife. He also couldn't form new memories or retain new information for more than about 30 seconds. However, he still remembered his wife and his deep love for her, and he had kept his ability to play the piano beautifully. Doctors at the time were puzzled—why could he remember some things and not others? While there is still more for us to understand, we've learned a lot since then about how human memory works, and why sometimes it doesn't.

Memory formation

Memories are formed through a three-step process. During *encoding*, your brain takes things you experience, like a newly-learned fact, and turns them into a kind of code. Next, there's *storage*, where your brain saves that code as neural connections. While some details in these stored connections fade quickly, others get saved for the long haul. Finally, during *retrieval*, the brain fetches the information when it's needed. This is a complex process and neuroscientists are still learning how it works.

Different types of memories form in different parts of the brain. Memories about specific events in your life are encoded in the hippocampus. Factual information, like Paris being the capital of France, is stored in your neocortex. Emotional memories, such as the warm feeling you get when you see someone you love, are saved in the amygdala. And the motor cortex holds so-called "muscle memory," like how to ride a bike.



Knowing how and where memories are formed helps us understand Clive Wearing's case. Since the damage to his brain occurred primarily in the hippocampus, it makes sense that he couldn't remember specific events like meeting his wife. But since other parts of his brain were largely undamaged, he retained other types of memories. The capital of France, the love he felt for his wife, and the "muscle memory" of playing the piano were all still encoded, stored, and able to be retrieved.

The inaccuracy of memory

Have you ever talked with someone about a past event and found that the two of you remember it differently? If so, you're not alone. While we tend to rely on our memories as a record of past experiences, that record is not perfectly accurate.

Inaccurate memories are sometimes the result of *imaginary inflation*—the tendency to "fill in" gaps of knowledge. For example, witnessing an event like a car accident happens so quickly your brain doesn't have enough time to encode every detail. Your brain doesn't like that missing detail. So, it tends to add information to "complete" the memory. You might "remember" that one of the cars was blue. Another person might "remember" it being red. There's a chance neither of you are right.

THE MANDELA EFFECT

The *Mandela Effect* occurs when a large group of people share the same false memory. For example, many people "remember" Snow White's evil queen saying, "Mirror, mirror on the wall." The line is actually, "Magic mirror on the wall."

Mix-ups like these happen because our brains are easily influenced by hearing incorrect information. In fact, the more we encounter inaccuracies, the more they can seem like real memories.

It is also possible to have a totally invented "memory." The "Lost in the Mall" study is a good example of how "memories" can form based on what other people tell you. In this study, participants were told stories about their childhood. Most of the stories described real events provided by participants' families. But one story about getting lost in the mall was made up. Remarkably, about 25% of people reported "remembering" the event even though it never happened.

Why we forget – and how we can remember

It's unusual for people to forget almost everything, like Clive Wearing did, or even to forget important things. But everyone forgets little things—the name of a person you just met, or where you left your homework. While we can't avoid forgetting altogether, understanding why it happens can help us prevent it.

The main cause of forgetting is *neural decay*. This happens as the connections that store memory weaken with time and lack of use. For example, you might forget your kindergarten teacher's name because you haven't thought about her in years. Memories that involve strong emotions are less prone to neural decay. We're more likely to remember an especially good (or awful) first day at school than all the normal days that don't involve strong emotions.

One good way to prevent memory decay is to make sure information gets strongly encoded from the start. Repeating information over a long period of time makes it stick—we're talking about days or weeks, not just an hour-long "cram" session. You can also use memory tricks called mnemonic devices. For example, information that's rhyming or rhythmic tends to encode very strongly. So, you might remember that in fourteen ninety-two, Columbus sailed the ocean blue. Acronyms, like HOMES for the Great Lakes (Huron, Ontario, Michigan, Erie, Superior), are also useful.

Finally, taking care of your brain's physical health is important for a strong memory. Diet matters, especially getting enough B vitamins and healthy fats. These nutrients are necessary for the creation of neural cells that encode information. It's also important to get plenty of rest, since the neural connections that store information are strengthened during sleep. In addition, regular exercise reduces stress hormones that interfere with memory retrieval.

Memory Palaces

A memory palace is a mnemonic device that dates all the way back to ancient Greece! To build one, you imagine a familiar place like your house. As you mentally "walk" through it, you put information you want to remember in different rooms. Later, you can use your memory palace like a map to guide you to information you need. When you picture the different parts of your palace, you'll be able to remember what you put in each room.

Annotating Fiction

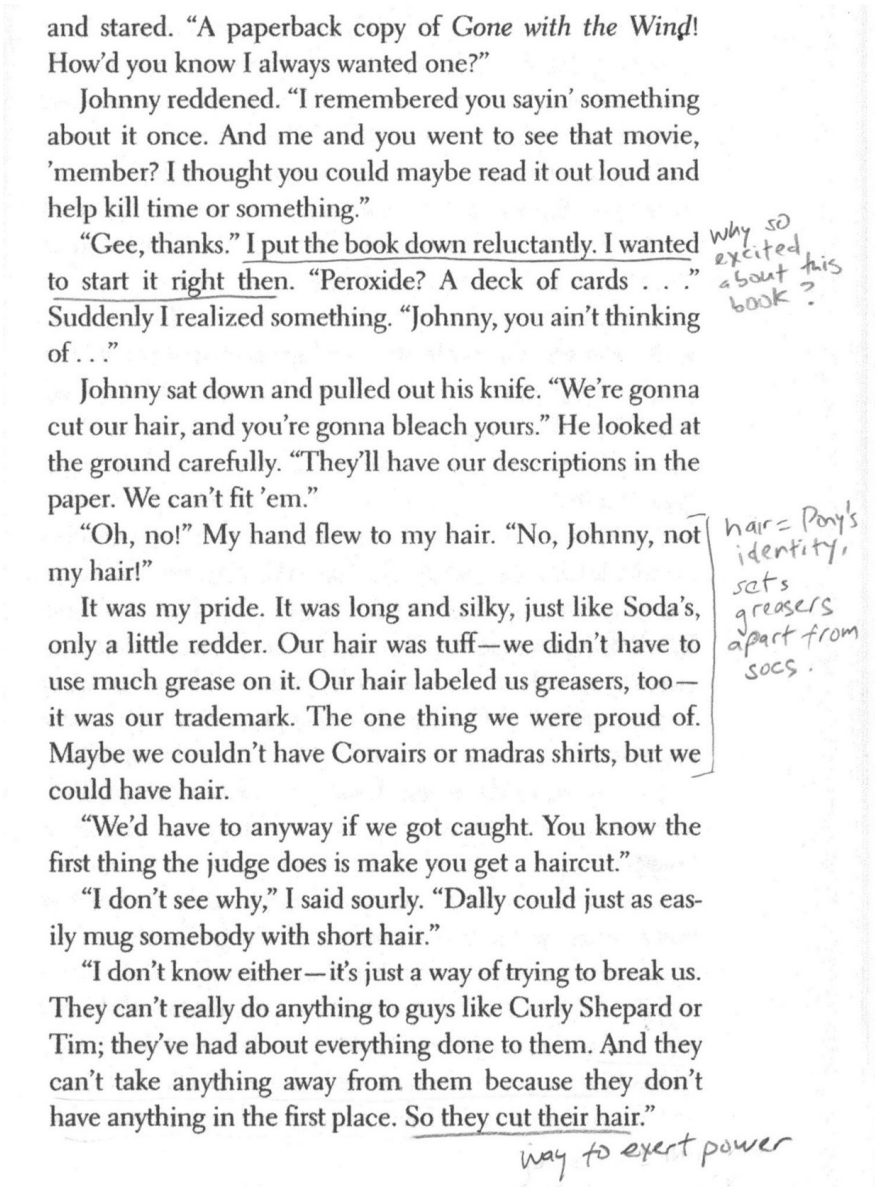
How to annotate:

- Mark important lines or passages. You can underline, circle or use brackets.
- Write short notes in the margin.

What to annotate:

- Character development & key plot events
- Themes or images
- Questions for discussion
- Your reactions & predictions
- Connections to earlier ideas in the text

Sample annotations from p. 71 of *The Outsiders*:



and stared. "A paperback copy of *Gone with the Wind*! How'd you know I always wanted one?"

Johnny reddened. "I remembered you sayin' something about it once. And me and you went to see that movie, 'member? I thought you could maybe read it out loud and help kill time or something."

"Gee, thanks." I put the book down reluctantly. I wanted to start it right then. "Peroxide? A deck of cards . . ." Suddenly I realized something. "Johnny, you ain't thinking of . . ."

Why so excited about this book?

Johnny sat down and pulled out his knife. "We're gonna cut our hair, and you're gonna bleach yours." He looked at the ground carefully. "They'll have our descriptions in the paper. We can't fit 'em."

"Oh, no!" My hand flew to my hair. "No, Johnny, not my hair!"

It was my pride. It was long and silky, just like Soda's, only a little redder. Our hair was tuff—we didn't have to use much grease on it. Our hair labeled us greasers, too—it was our trademark. The one thing we were proud of. Maybe we couldn't have Corvairs or madras shirts, but we could have hair.

hair = Pony's identity, sets greasers apart from socs.

"We'd have to anyway if we got caught. You know the first thing the judge does is make you get a haircut."

"I don't see why," I said sourly. "Dally could just as easily mug somebody with short hair."

"I don't know either—it's just a way of trying to break us. They can't really do anything to guys like Curly Shepard or Tim; they've had about everything done to them. And they can't take anything away from them because they don't have anything in the first place. So they cut their hair."

way to exert power

Active Reading in Textbooks

- **Before you read:** Preview the section:
  - Read the section overview and introduction.
  - Figure out how the section is organized.
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- **While you read:** Track main ideas and supporting details.
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  - Ask yourself questions.
  - Do tellbacks.
  - Take notes.
- **After you read:** Review what you've read.

SECTION
7.2

Community Ecology

Learning Objectives

- Identify the three interspecies relationships that harm at least one of the species involved.
- Explain the two species interactions that have a neutral or a positive effect on both of the species.

Vocabulary

- community ecology
- competition
- resource
- predation
- predators
- prey
- parasite
- host organism
- parasitism
- mutualism
- commensalism

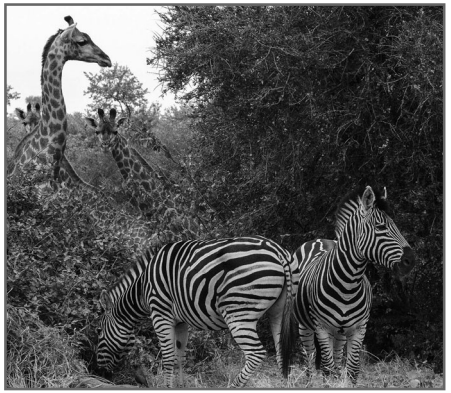
If you've ever owned an aquarium, you know that some species get along swimmingly, while others will eat each other in no time. Why is that? What characterizes the way living things interact with one another? Answering questions like these is the job of community ecology.

Community ecology is the study of how different species interact with each other within an ecosystem. Interspecies relationships, or relationships between two different species, can involve plants, animals, fungi, and all other types of organisms. Scientists often categorize these relationships based on whether they benefit or harm the species involved.

HARMFUL INTERSPECIES RELATIONSHIPS

Organisms often depend on interactions with other organisms for survival. Because they prioritize their own survival, some organisms cause harm to the other species that they interact with. Three types of interspecies relationships that harm at least one of the species involved are competition, predation, and parasitism.

Competition **Competition** is a type of interaction that occurs when two different species must compete for the same limited resources in order to survive. A **resource** is anything that a species needs to grow or reproduce, such as nutrients, water, territory, or shelter. Competition negatively impacts both species because both species would be better off if they weren't competing for the same resource. For example, giraffes and zebras depend on many of the same plants for food. When resources are limited, the amount of food that is available for giraffes is lowered by the presence of zebras, and vice-versa. Thus, each species is less able to survive and grow their population because of competition.



Giraffes and zebras compete for the same resources, potentially harming both organisms.

DID YOU KNOW...?

Different plant species are often in competition for light. When a taller species grows upward toward the sun, it shades its competitors with its leaves, limiting their access to a critical resource.

Predation **Predation** occurs when one species kills and eats another species. Animals that kill other animals for food are called **predators**, and animals that are eaten by other animals are called **prey**. Prey are harmed by predation, while predators benefit from the nutrients and energy they get from eating their prey. For example, when a lion hunts and catches an antelope, the survival of the lion comes at the cost of the antelope's life.

This kingfisher preys on fish.

Predation helps maintain population balance in ecological communities.

Predation is both common and extremely important for the proper functioning of ecological communities. For example, animals like deer can destroy native plants when their populations get too large. By eating these animals, predators like wolves help regulate their population size. In doing so, they allow plants to thrive.

Parasitism A **parasite** is an organism that lives on or in another organism, called the **host organism**, and causes some harm to it. **Parasitism** refers to the relationship between a parasite and its host organism. Parasites generally use their host organisms to get food or protection. Because parasites rely on their hosts for their own survival, they rarely harm their hosts enough to kill them.

The parasitic corpse flower steals energy from its host.

Many types of organisms can be parasites, from single-celled protozoa to flowering plants to large, complex invertebrates. Tapeworms, for example, are parasitic animals that live inside the digestive systems of mammals. They get nutrients by eating the mammal's partially digested food, reducing the nutrients available to their host. The corpse flower (which get its name from its awful stench) is an example of a parasitic plant. Corpse flowers are unable to produce their own energy. In order to survive, they attach themselves to other plants and steal the energy those plants create through photosynthesis.

POSITIVE OR NEUTRAL INTERSPECIES RELATIONSHIPS

Not all interspecies relationships harm one of the species involved. There are two types of interspecies relationships that benefit one or both of the animals involved: mutualism and commensalism.

Mutualism Sometimes, two species interact in a way that helps them both. Because this type of relationships is mutually beneficial, it is called **mutualism**. One of the best examples of mutualism is the relationship between bees and flowering plants. When a bee feeds on the nectar inside of a flower, some of the plant's pollen gets stuck to the bee. This pollen rubs off onto the next flower that the bee goes to, allowing the plant to reproduce and make more seeds. The relationship between bees and flowering plants is mutually beneficial because the bees get to feed on nectar and the plants get to reproduce.

Sea anemones provide secure homes for clownfish. In return, the clownfish provide protection and fertilizer.

Cattle egrets and cows have a commensal relationship.

Commensalism **Commensalism** is a type of relationship that benefits one species and doesn't positively or negatively impact the other. One example of an organism that participates in commensalism is the cattle egret. These birds follow behind cows as they graze. The cows tend to stir up insects from the ground, which the egrets eat. The relationship between cattle egrets and cows is commensal because the egrets get food while the cows are unaffected by the egrets.

Relationship	Effect on Species 1	Effect on Species 2
Competition	Negative	Negative
Predation	Positive	Negative
Parasitism	Positive	Negative
Mutualism	Positive	Positive
Commensalism	Positive	Neutral

READING CHECK

Acacia trees provide ants with shelter and nectar. In turn, ants protect the trees by attacking animals that try to eat them. Which interspecies relationship is this, and why?

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.

Community Ecology

- Comm. ecol. = Study of how different species interact within ecosystem
  - Interspecies rel. Can involve plants, animals, fungi, all other Organisms
  - Rel. Categorized based on whether they benefit or harm spec.

Harmful Species Relationships

- Some organisms cause harm to the spec. they interact with
  - 3 harmful Rel. = Competition, predation, parasitism.

Competition

- Competition = Interaction where 2 spec. compete for same limited Resour
  - Resource = what spec. need to live, Ex: Food, water, shelter
  - Comp. neg. affects both species.
  - Ex: both zebra & Giraffe harmed when they Compete for same Plants

Predation

- Predation = 1 spec. kills/eats other
  - Predators (animals that kill) benefit, get nutrients, energy.
  - Prey (anim. killed) Harmed.
  - Ex: Lion hunts, kills Antelope
- Predation common & Imp. for functioning of ecological commun.
  - Ex: too many deer can destroy plants. Preds like wolves regulate deer popul, help plants

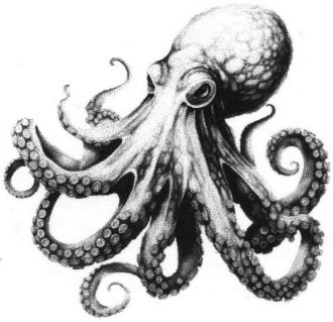
Parasitism

- Parasitism = rel b/w parasite & Host Organism
  - Parasite = organism that lives on or in host organism & Harms it.
  - Para. gets food, protection from host.
  - Doesn't kill b/c it relies on host for survival
- Lots of orgs. Can be parasites, from Single-Cell to large Invertebrat
  - Ex; Tapeworm lives in mammal digestive syst, reduces nutrients for Host.
  - Ex; Corpse flower can't produce own energy, So attaches to other plants & Steals energy.

AI Art: A Useful Technology

Unless you've spent the last ten years or so living under a rock, you know that technology gets more sophisticated and impressive every day. One of the latest marvels is AI art generators—programs that create beautiful, original images in seconds. AI art has gotten so good, and so much like human art, that some people's knee-jerk reaction is horror. There's really no need to be afraid, though. This is a useful technology that offers several benefits.

Thesis: AI is useful — has several benefits



Created by AI using the prompt "abstract pencil art of an octopus."

First of all, AI makes art accessible to everyone. Not everyone has the talent or time to become a professional artist, and not everyone has the money to buy works from professional artists either. AI-generated art, on the other hand, can be created by anyone with access to a computer. Just type in any prompt you can think of—for example, "abstract pencil drawing of an octopus"—and be amazed by the results. AI is nothing more than a tool that gives anyone the opportunity to enjoy art no matter their age, income, or level of talent.

Reason #1: AI makes art accessible

but is it really art?

AI is more than a way for average people to enjoy art. It's also an incredibly useful tool for artists themselves. Angela Villaruz, a business writer, argues that there are many ways for professionals like graphic designers and animators to use art generators. AI makes it easier for them to meet deadlines, create prototypes, and get inspiration. Instead of having to start from scratch, they can quickly generate images and then adjust them for their specific needs. In fact, professional artists are in a unique position to take advantage of AI. Unlike most of us, they know exactly what kind of language to use to get useful results from AI.

This image would have been very difficult for a photographer to create with real animals.

Finally, there's no reason to be afraid that AI will replace human art or artists. While artists who charge money may lose some business to bots that don't, AI cannot produce art that truly reflects the human experience. Great works of art are personal, meaningful, and more original than anything AI can come up with. There's no doubt that machine art generators have their uses, but they don't understand what they create. And, unlike people, they don't even want to create. There will therefore always be a place in the world for human artists.

Annotating Nonfiction

How to annotate:

- Mark important lines or passages. You can underline, circle or use brackets.
- Write short notes in the margin.

What to annotate:

- Main ideas
- Key arguments
- Brief summaries of important information
- Important terms
- Your comments and questions

What's wrong with these annotations?

tech. is always improving

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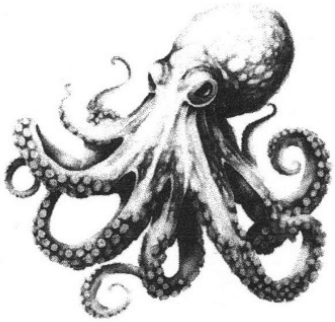
art generators create work in seconds

Thesis: AI is useful — has several benefits



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Reason #1: AI makes art accessible

Art takes long time and is expensive, but AI is cheap

but is it really art?

The Trouble With AI Art

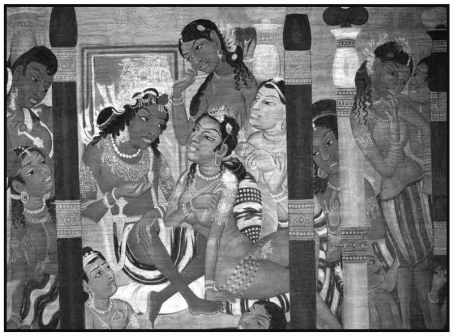
It used to be that if you wanted an image of a cat riding a motorcycle, you either had to draw it yourself or pay someone else to. Nowadays, you can simply ask a computer to do it, and the computer will. Instantly. And for free. While this might initially seem incredible, it's important to really think about the implications. The truth is that art generated by artificial intelligence is problematic for several reasons.

AI learns by analyzing works like *Girl with A Pearl Earring* by Dutch painter Johannes Vermeer.

To understand the trouble with AI art, we must first understand that this technology "learns" by stealing data from human artists. Art generators are only able to do what they do by analyzing millions of images created by actual artists. Jared Krichevsky is one of those artists, and he's not happy about it. "[Artists'] works are being inputted into a machine against their will," he says. AI art wouldn't exist without people like Krichevsky, yet their work is used without permission, often in violation of copyright law. They also receive no credit or compensation.

Not only do art generators use the work of human artists, but AI is also putting those artists out of business. It's always been hard to make a living as an artist, and art generators have only made it harder. Businesses are increasingly turning to AI when they need images because it's cheaper and faster than hiring a professional artist. The thing is, art should take time, and it should cost money. Artists do, after all, put years and years into developing their skills and they pour their souls into their creations. They deserve to be paid for all that effort.

Finally, this technology corrupts the very concept of what art is. Art has been a defining characteristic of our species since the days of cave paintings. Yet AI has gotten so good at mimicking human work that even artist Ari Melenciano can "barely tell the difference." This should trouble us, she argues, because art is about human expression, not just the end product. AI images might look like art, but they don't have any true creativity. We shouldn't be flooding the world with AI-generated images that lack humanity, especially when doing that means taking advantage of, and replacing, real artists.



The cave paintings of Ajanta are the oldest surviving examples of painting in India.

Text Structures

A **text structure** is how an author organizes information. For example:

- Description
- Cause-Effect
- Comparison
- Sequence

Signal Words

Description	Cause-Effect	Comparison	Sequence

as a result	because	both	caused by
characteristics	different	due to	first
for example	in contrast	next	process
similar	steps	such as	types of

Text Structure Paragraphs

Paragraph 1: _____

There are many types of whales, but blue whales are the biggest. In fact, they're the biggest animals that have ever existed. These huge creatures weigh about 200 tons and are nearly 100 feet long. Even their organs are enormous. For instance, a blue whale's heart is so big that you could drive a car right through it! Interestingly, the world's largest animal lives by consuming some of the smallest, including plankton and tiny shrimp-like animals known as krill.

Paragraph 2: _____

The life cycle of a whale comprises three stages. The first begins at birth and lasts until the young calf stops nursing at around two years old. During this time, calves rely on their mothers for sustenance and protection. Next, whales move into adolescence. Adolescent females remain with their mothers, while males strike out on their own. Finally, whales enter adulthood when they start reproducing, usually around 13 years of age. This final stage continues for the rest of the whale's life, which can be as long as 90 years.

Paragraph 3: _____

Orcas, sometimes called "killer whales," share some similarities with whales, but they're actually a kind of dolphin. Many whales are solitary and may go a year or more without seeing another of their species. Orcas, on the other hand, are highly social creatures. They live in pods containing dozens of individuals. And although all orcas have teeth for eating prey, only some whales do. Toothless whales rely instead on baleen, a bristle-like structure in their mouths to collect tiny particles of food.

Paragraph 4: _____

The whale population was in a dire state by the middle of the 20th century, with many species on the brink of extinction. The cause? Overfishing. In the 20th century, people ate whale meat, melted their blubber into oil for lamps, and used whale bones to craft everything from umbrellas to fishing rods. As a result, demand for whales exploded, as did the industry that hunted them. Humans killed over three million whales in under 100 years, so these magnificent creatures became rarer and rarer.

Study Skills & Strategies

Tips for Successful Time Management

- Make a schedule and stick to it.
- Set realistic goals.
- Avoid multitasking.
- Eliminate distractions.
- Schedule in flexibility and fun.

Sample Study Schedule

2:30 – 4:30:	Soccer practice
4:30 – 5:00:	Arrive home, have a snack
5:00 – 6:00:	Outline and write intro of Eng. essay
6:00 – 6:30:	Dinner
6:30 – 7:00:	Do math assignment
7:00 – 7:30:	Study break / relax
7:30 – 8:30:	Study for bio test

Staying Focused When Reading Online

- Have a clear goal in mind.
- Use active reading strategies.
- Close any windows you aren't using.
- Set a timer and take short breaks.

Avoiding Procrastination

Most students procrastinate at some point. Here are some tips to help you deal with procrastination effectively:

- Figure out why you're procrastinating.
- Use time management strategies: make a schedule and set realistic goals.
- Reduce distractions—put your phone away!
- Try switching up your study space.
- Motivate yourself: build in breaks and rewards.
- Start with a small step. Don't try to tackle the whole project at once.
- Don't be a perfectionist. You can always fix a first draft later.

Test Prep

- Organize your materials and your space.
- Use study tools actively:
  - Quiz yourself using flash cards or a study guide.
  - Use your notes to do tellbacks.
  - Think like a teacher—ask yourself questions you think will be on the test.
  - Go back to anything you missed or didn't understand.
- Don't cram!
  - Schedule short, focused study sessions.
  - Spread out your sessions.

Test Taking

Before the test:

- Get enough sleep.
- Get to class on time and prepared.
- Don't cram right before the test.

During the test:

- Listen to and read instructions carefully.
- Preview the entire test before you begin.
- Don't get stuck on hard questions—skip them and return later.
- Review the entire test before turning it in.

Strategies for different question types:

- Multiple choice questions: read the question carefully and read all the answer choices—don't stop on the first one that seems correct.
- Short answer questions: answer as much of the question as you can.
- Essay questions: make an outline on scrap paper or in the margin.

Reading Speed Grids

The Outsiders: 9.5 words per line

# of lines	Reading Speed
1	9.5
2	19
3	29
4	38
5	48
6	57
7	67
8	76
9	86
10	95
11	105
12	114
13	124
14	133
15	143

# of lines	Reading Speed
16	152
17	162
18	171
19	181
20	190
21	200
22	209
23	219
24	228
25	238
26	247
27	257
28	266
29	276
30	285

# of lines	Reading Speed
31	295
32	304
33	314
34	323
35	333
36	342
37	352
38	361
39	371
40	380
41	390
42	399
43	409
44	418
45	428

# of lines	Reading Speed
46	437
47	447
48	456
49	466
50	475
51	485
52	494
53	504
54	513
55	523
56	532
57	542
58	551
59	561
60	570

Hope Was Here: 10 words per line

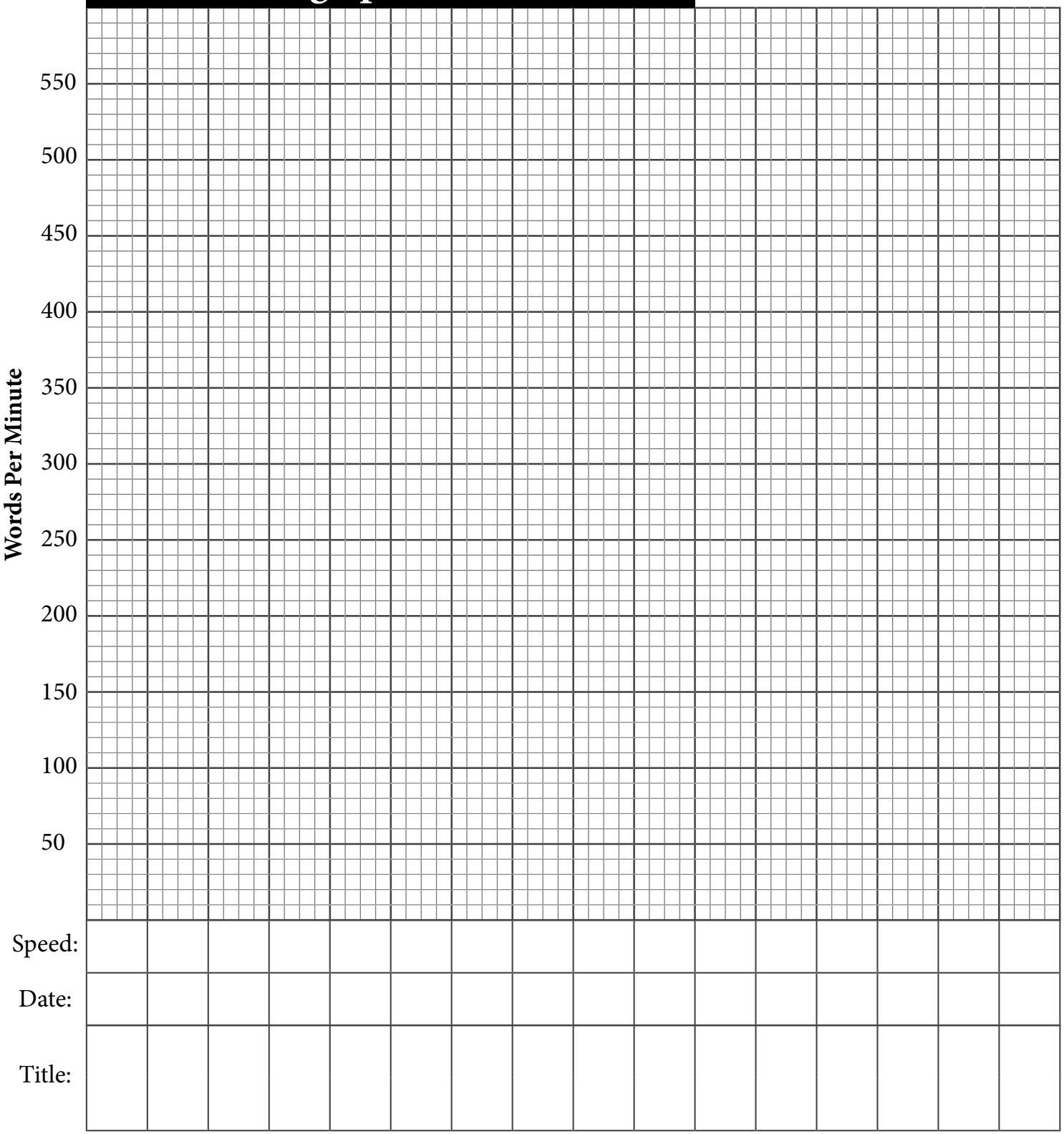
# of lines	Reading Speed
1	10
2	20
3	30
4	40
5	50
6	60
7	70
8	80
9	90
10	100
11	110
12	120
13	130
14	140
15	150

# 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 Different 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.