



INSTITUTE OF
**READING
DEVELOPMENT**

Nonfiction

Program 7

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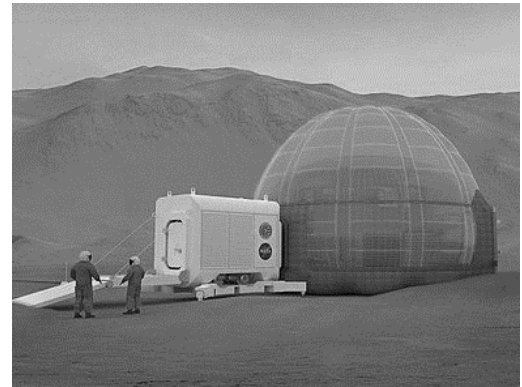
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Making Mars Home

If you've ever imagined yourself on Mars, looking out over a sea of red sand, you're not alone. Humans have created countless books and movies about living on Mars. We're now closer than ever to making that fantasy a reality, but there are some challenges we'd need to overcome.

Living and Breathing

One of the biggest problems with Mars is its extreme environment. The average temperature is a frigid -80°F , and it can get much colder than that. To survive, we'd need to create shelters called "habitats." Engineers at NASA have proposed plastic domes that look like round greenhouses. They would be heated by solar power and sealed to keep that heat in. Outside the habitats, however, space suits would always be necessary.



A simulation of a Martian habitat

Another issue with Mars is that its atmosphere is very thin. That means that the air does not have enough oxygen for humans to survive. In fact, oxygen makes up less than 1% of the atmosphere compared with Earth's 21%. So, we'd have to create oxygen using a machine called the "Mars Oxygen In-Situ Resource Utilization Experiment", or MOXIE, to breathe. It has already been used to turn Mars' carbon dioxide into breathable oxygen.

Eating and Drinking

Getting enough water to survive on Mars would be challenging. What little water the planet has is all frozen. While we could bring *some* water from Earth, it wouldn't be practical or possible to bring enough. This means people would have to mine ice. Just like we dig for gold on Earth, people on Mars would dig for chunks of ice to bring back to their habitats and melt into water.

Anyone wanting to live on Mars would also have to grow their own food. Unfortunately, options would be limited. There'd be no meat, milk, or eggs, since raising animals requires too many resources. Most plants would have a hard time growing, too. Humans would have to rely on things that can live in extreme environments, like cacti, algae, and fungi.

Beyond the Dome: Terraforming Mars

Living in domes, mining for ice and eating algae is only a short-term solution for living on Mars. To truly make Mars home, we'd have to change the entire planet to be more like Earth. This idea, called terraforming, has never been done before. Still, scientists have a plan. Giant mirrors placed in space could direct the sun's warming rays at Mars' polar ice caps, melting them. That would make water available for plants to grow. In time, forests would fill the atmosphere with oxygen. It might take thousands of years, but eventually humans could thrive on Mars.

Going to the Movies: Then and Now

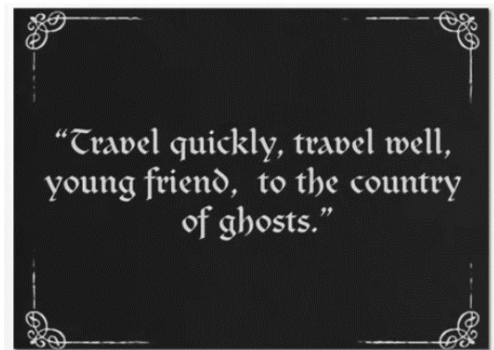
If you could climb in a time machine, go back 100 years, and see a movie, you'd be in for a big surprise! That's because going to the movies back then was very different than it is today.



Cinema Odeon in Florence was Italy's first movie theater, opening in 1922.

One of the biggest differences you'd notice is how the theater looks. In the 1920s, movie theaters were very fancy, and going to one was a special event. The buildings often had elaborate decorations, velvet seats, and plush carpets. By contrast, today's theaters are designed for function rather than beauty. The seats are comfortable, but not particularly interesting to look at.

Movies themselves have also changed a lot in the last 100 years. Unlike today, movies in the 1920s were in black-and-white, not color. They were also silent. Any time a character needed to say something, a slide with words on it appeared on the screen. Live musicians provided background music as the movie played. Nowadays though you can hear the actors speak, and the musical score is recorded during the production process.



Title slide from *Nosferatu*

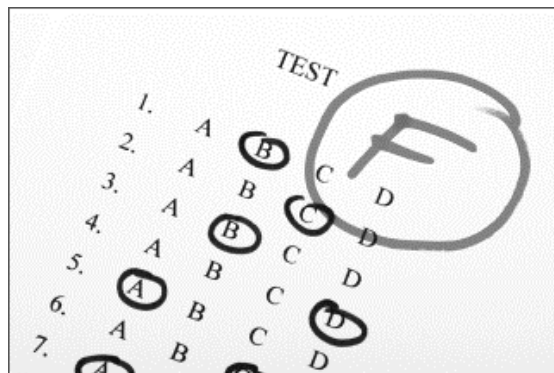
What about the experience of watching a movie? Well, today we expect everyone to stay quiet during the show. Back then, however, many theaters hired interpreters to read the slides on the screen aloud. These interpreters would also comment on what was happening or cheer the hero on in exciting moments. And while popcorn and soda are a big part of movies now, eating and drinking during a show was forbidden 100 years ago. Owners didn't want anything spilling on the expensive chairs and carpets.

Comparison

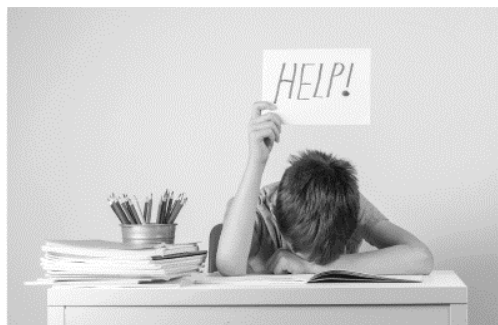
Movies Today	Movies 100 Years Ago

No Grades? No Problem!

Most students know what it feels like to nervously watch a teacher return tests and wonder what grade is on the top of their paper. What if you never had to experience that again? Some schools are making that a reality by doing away with traditional letter grades. This is the right move—overall, grades have a negative impact on students and should be eliminated.



First, the A-F grading system stresses kids out. In one survey, over 90% of middle-schoolers reported feeling worried about getting bad grades. While some say that worry motivates kids to do well, it's just as likely to make them perform worse. Research shows that school-related stress can lead to poor sleep, a weakened immune system, and depression. To avoid this, schools need a less stressful way to evaluate students.



In addition, the pressure to get good grades stops many students from taking academic risks. Grade-conscious kids are more likely to take classes they know they can ace. They avoid ambitious projects because they're afraid of making a mistake and getting a lower grade. Schools that don't use A-F letter grades, however, encourage students to challenge themselves and step outside their comfort zones.

Finally, traditional grades don't really reflect kids' true abilities. Grades are just too simple to measure things like creativity or original thinking. As Alfie Kohn of the High School Magazine puts it, "a 'B' in English says nothing about what a student can do, what she understands, where she needs help." The point is, the traditional letter grade system isn't helpful and actually ends up hurting kids.

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.



PRIMATES

LESSON 3

VOCABULARY

- Primate
- Strepsirrhini
- Haplorrhini
- opposable thumb
- stereoscopic vision
- arboreal
- omnivore
- grooming

KEY IDEAS

- Primates are a group of mammals with four common traits.
- Primates live in trees and eat a variety of foods.
- Primates form deep social bonds and use tools.



What does a mouse lemur four inches long have in common with a silverback gorilla twice the size of your average human? And what do either one of those animals have in common with us? Well, we're all primates! To better understand what it means to be human, it's important to learn about the creatures most closely related to us—what their characteristics are, where they live and what they eat, and how they behave.

WHAT IS A PRIMATE?

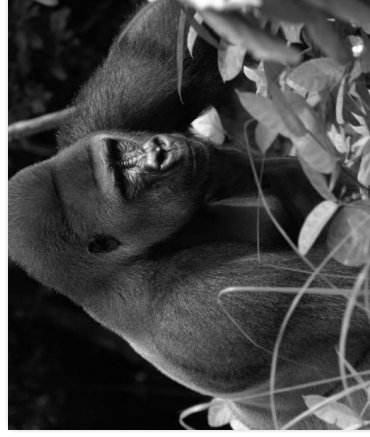
Primates are a group of mammals that include apes, monkeys, lemurs, and tarsiers. They come in a wide variety of shapes, sizes, and appearances.

Types of Primates

All primates fall into one of two groups. The first is **Strepsirrhini** (STREP-sir-RY-nee), and it includes smaller, less advanced primates like lemurs and bush babies. These animals are only found in Africa and Asia. Sometimes they're called the "wet-nosed" primates because the skin around their nostrils is moist, like a dog or a cat's nose.



The mouse lemur is the smallest known primate.



The silverback gorilla is a member of the Haplorrhini group.

The second primate group is **Haplorrhini** (HAP-lor-RY-nee). Primates in Haplorrhini are larger and more advanced, like gorillas and chimpanzees, as well as humans. You can find them in South America, Africa, Asia, and Europe. Haplorrhini are sometimes called "dry-nosed" primates, as they do not have a patch of moist skin around their nostrils.

Primate Traits

Primates have four traits that set them apart from other mammals:

Excellent Vision Primates have excellent eyesight. Their eyes are forward-facing, and many see in color. All primates have **stereoscopic vision**, which means they can see in three dimensions. That helps them accurately judge distances.



Like all primates, this tarsier has excellent vision.



This lemur's five-digit hand with an opposable thumb is very similar to ours.

Five-Digit Hands Primates have a hand with four fingers and an opposable thumb. **Opposable thumbs** are thumbs that can be placed opposite the fingers of the same hand. This allows primates to grab hold of things like branches and tools.

Large Brains Primates have bigger brains compared to the size of their body than other animals. Their large brains make them more intelligent than other creatures. They can learn new behaviors easily and form complex social relationships.

Slower Rate of Development

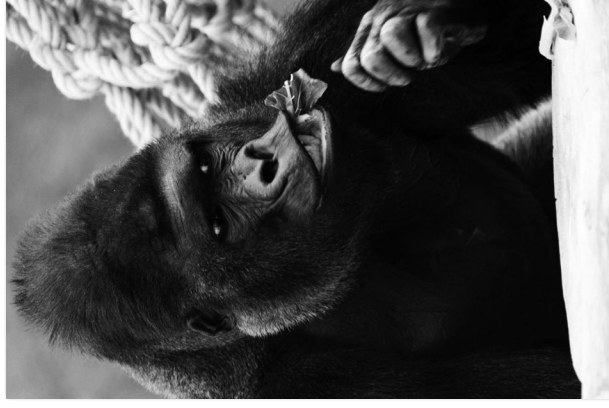
Primates can take years to become adults. They have a long childhood where they learn from and are cared for by adults. Because they develop slowly, they also live longer than other animals. Chimpanzees, for example, can live over 60 years.



Chimpanzee family in Uganda

WHERE DO PRIMATES LIVE AND WHAT DO THEY EAT?

Most primates are **arboreal**, meaning they spend their lives in trees. Primates' bodies are well-suited to life in the trees. Their long arms and curving fingers allow them to swing from branch to branch. Some primates even have tails they can use to grab branches. Living in trees keeps them safe from predators and close to one of their favorite foods—fruit.



Primates eat a wide variety of foods from both plant and animal sources.



Primates are experts at living in trees and can jump from one branch to another with ease.

Primates are omnivorous. **Omnivores** eat a wide variety of foods from both plant and animal sources. Examples of foods that primates regularly eat include fruit, leaves, nectar, eggs, insects, and small birds and reptiles. Occasionally, baboons and chimpanzees will hunt larger prey like young antelope.



Like most primates, this macaque prefers fruit.

HOW DO PRIMATES BEHAVE?

In some ways, primates behave just like any other mammal. They spend their days searching for food, avoiding predators, and raising their young. There are, however, a few behaviors that set them apart.

Social Behavior

Most primates live in family groups and form deep bonds with one another. Their relationships last for years, and they will put their own lives in danger to help other members of their group. Primates express their affection for one another in much the same way we do—they'll hug, hold hands, and even kiss. Another affectionate behavior is called **grooming**. When primates groom one another, they spend hours combing through each other's fur, picking off parasites like fleas.



Two olive baboons engaging in grooming behavior

Tool Use

Primates are one of very few animals known to use tools. Primates were first observed using tools in 1960, when biologist Jane Goodall saw a chimpanzee using a piece of grass to collect termites and eat them. In addition to grass, primates frequently use sticks and rocks as tools. Sticks serve lots of purposes, from deadly hunting clubs to convenient back-scratchers. Rocks are used to smash open favorite foods, like snails or nuts.



A capuchin monkey using rocks to smash open a nut

READING CHECK QUESTION

What are some behaviors that set primates apart from other animals?

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.

Primates

What is a Primate?

- Primates = group of mammals incl. apes, monkeys, lemurs + tarsiers

Types of Primates

- Strepsirrhini = small, less advanced
 - Ex: lemurs, bush babies
 - Found in Africa, Asia
 - "wet-nosed" = skin around nostrils is moist
- Haplorrhini = larger, more advan.
 - Ex: gorillas, macaques, humans
 - South Amer., Afr., Asia, Europe
 - "dry-nosed" = no moist skin around nostrils

Primate Traits

- Excellent vision
 - Forward-facing eyes
 - Stereoscopic vis. = 3D, can judge distance
- Five-digit hand
 - 4 fingers
 - Opposable thumb opp. fingers for grabbing
- Large brain
 - Learn behaviors easily, form complex social relationships
- Slower rate of development
 - Long childhood
 - Live longer than other anim.

What's wrong with these notes?

Sample 1:

Primates

What is a Primate?

- Primates = group of mammals

Types of Primates

- Strepsirrhini
 - Lemurs, bush babies
 - Afr., Asia
 - Wet-nosed
- Haplorrhini
 - Gorillas, humans
 - SA., Af., As., Eu.
 - Dry-nosed

Sample 2:

Primates

- What do a mouse lemur and silverback gorilla have in common with us?
We're all primates!

What is a Primate?

- Primates are a group of mammals that include apes, monkeys, lemurs and tarsiers. They come in a wide variety of shapes, sizes + appearances.

Types of Primates

- The first group is Strepsirrhini, and it includes smaller, less advanced primates like lemurs and bush babies.
- These animals are only found in Africa and Asia.
- Sometimes they are called "wet-nosed" primates because the skin around their nostrils is moist.
- The second primate group is Haplorrhini. Primates in this group are larger and more advanced.
- You can find them in South America, Africa, Asia and Europe.
- They are sometimes called "dry-nosed" primates, as they do not have a moist patch of skin around their nostrils.

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 16×11 , or 176 words per minute.

Reading Speed Grids

Patina: 9 words per line

# of lines	Reading Speed
1	9
2	18
3	27
4	36
5	45
6	54
7	63
8	72
9	81
10	90
11	99
12	108
13	117
14	126
15	135

# of lines	Reading Speed
16	144
17	153
18	162
19	171
20	180
21	189
22	198
23	207
24	216
25	225
26	234
27	243
28	252
29	261
30	270

# of lines	Reading Speed
31	279
32	288
33	297
34	306
35	315
36	324
37	333
38	342
39	351
40	360
41	369
42	378
43	387
44	396
45	405

# of lines	Reading Speed
46	414
47	423
48	432
49	441
50	450
51	459
52	468
53	477
54	486
55	495
56	504
57	513
58	522
59	531
60	540

Indigo: 7.5 words per line

# of lines	Reading Speed
1	7.5
2	15
3	23
4	30
5	38
6	45
7	53
8	60
9	68
10	75
11	83
12	90
13	98
14	105
15	113

# of lines	Reading Speed
16	120
17	128
18	135
19	143
20	150
21	158
22	165
23	173
24	180
25	188
26	195
27	203
28	210
29	218
30	225

# of lines	Reading Speed
31	233
32	240
33	248
34	255
35	263
36	270
37	278
38	285
39	293
40	300
41	308
42	315
43	323
44	330
45	338

# of lines	Reading Speed
46	345
47	353
48	360
49	368
50	375
51	383
52	390
53	398
54	405
55	413
56	420
57	428
58	435
59	443
60	450

Reading Speed Tracker

