

Stimuli materials from

Roediger, H.L., & Karpicke, J.D. (2006b). Test-enhanced learning: Taking memory tests improves long-term retention. *Psychological Science*, *17*, 249-255.

Source of the materials:

Rogers, B. (2001). TOEFL CBT Success. Princeton, NJ: Peterson's.

The Sun

The Sun today is a yellow dwarf star. It is fueled by thermonuclear reactions near its center that convert hydrogen to helium. The Sun has existed in its present state for about 4 billion, 600 million years and is thousands of times larger than the Earth.

By studying other stars, astronomers can predict what the rest of the Sun's life will be like. About 5 billion years from now, the core of the Sun will shrink and become hotter. The surface temperature will fall. The higher temperature of the center will increase the rate of thermonuclear reactions. The outer regions of the Sun will expand approximately 35 million miles, which is about the distance to Mercury. The Sun will then be a red giant star.

Temperatures on the Earth will become too hot for life to exist.

Once the Sun has used up its thermonuclear energy as a red giant, it will begin to shrink. After it shrinks to the size of the Earth, it will become a white dwarf star. The Sun may throw off huge amounts of gases in violent eruptions called nova explosions as it changes from a red giant to a white dwarf.

After billions of years as a white dwarf, the Sun will have used up all its fuel and will have lost its heat. Such a star is called a black dwarf. After the sun has become a black dwarf, the Earth will be dark and cold. If any atmosphere remains there it will have frozen onto the Earth's surface.

The Sun

Idea #	Idea
1	The Sun today is a yellow dwarf star
2	It is fueled by thermonuclear reactions near its center
3	The reactions convert hydrogen to helium
4	The Sun has existed in its present state for about 4 billion, 600 million years (4 billion and some is okay)
5	And it is thousands of times larger than the Earth
6	By studying other stars,
7	Astronomers can predict what the rest of the Sun's life will be like
8	About 5 billion years from now (billions is okay)
9	The core of the Sun will shrink
10	And it (the core) will become hotter
11	The surface temperature will fall
12	The higher temperature of the center will increase the rate of thermonuclear reactions
13	The outer regions of the Sun will expand
14	Approximately 35 million miles
15	Which is about the distance to Mercury
16	The Sun will then be a red giant star
17	Temperatures on the Earth will become too hot for life to exist
18	Once the Sun has used up its thermonuclear energy as a red giant
19	It will begin to shrink
20	After it shrinks to the size of the Earth
21	It will become a white dwarf star
22	The Sun may throw off huge amounts of gases in violent eruptions
23	Called nova explosions
24	As it changes from a red giant to a white dwarf
25	After billions of years as a white dwarf,
26	The Sun will have used up all its fuel
27	And it will have lost its heat
28	Such a star is called a black dwarf
29	After the sun has become a black dwarf, the Earth will be dark and cold
30	If any atmosphere remains there it will have frozen onto the Earth's surface

Sea Otters

Sea otters dwell in the North Pacific. They are the largest of the mustelids, a group that also includes freshwater otters, weasels, and badgers. They are from 4 to 5 feet long and most weigh from 60 to 85 pounds. Large males may weigh 100 pounds or more.

Unlike most marine mammals, such as seals or dolphins, sea otters lack a layer of blubber, and therefore have to eat up to 30 percent of their body weight a day in clams, crabs, fish, octopus, squids, and other delicacies to maintain body heat. Their voracious appetites do not create food shortages, however, because they are picky eaters, each animal preferring only a few food types. Thus no single type of food source is exhausted. Sea otters play an important environmental role by protecting forests of seaweed called kelp, which provide shelter and nutrients to many species. Certain sea otters feast on invertebrates, like sea urchins and abalones, that destroy kelp.

Sea otters eat and sleep while floating on their backs, often on masses of kelp. They seldom come on shore. Sea otters keep warm by means of their luxuriant double-layered fur, the densest among animals. The soft outer fur forms a protective cover that keeps the fine underfur dry. One square inch of underfur contains up to one million hairs. Unfortunately, this essential feature almost led to their extinction, as commercial hunters drastically reduced their numbers.

Under government protection, the sea otter population has recovered. However, occasionally unfortunate events have damaged the sea otter population. For example, in 1989, up to 5,000 sea otters perished when the Exxon Valdez spilled oil in Prince William Sound, Alaska.

Sea Otters

Idea #	Idea
1	Sea otters dwell in the North Pacific
2	They are the largest of the mustelids
3	A group that also includes freshwater otters, weasels, and badgers
4	They are from 4 to 5 feet long
5	Most weigh from 60 to 85 pounds
6	Large males may weigh 100 pounds or more
7	Unlike most marine mammals (such as seals or dolphins), sea otters lack a layer of blubber
8	Therefore they have to eat up to 30 percent of their body weight a day
9	In clams, crabs, fish, octopus, squids, and other delicacies
10	In order to maintain body heat
11	Their voracious appetites do not create food shortages (no single type of food source is exhausted)
12	Because they are picky eaters, each animal preferring only a few food types
13	Sea otters play an important environmental role by protecting forests of seaweed called kelp
14	Kelp provide shelter and nutrients to many species
15	Certain sea otters feast on invertebrates (like sea urchins and abalones) that destroy kelp
16	Sea otters eat and sleep while floating on their backs
17	Often on masses of kelp
18	They seldom come on shore
19	Sea otters keep warm by means of their luxuriant double-layered fur
20	Their fur is the densest among animals
21	The soft outer fur forms a protective cover (protects the underfur)
22	That keeps the fine underfur dry
23	One square inch of underfur contains up to one million hairs
24	Unfortunately, this essential feature almost led to their extinction (endangerment is okay)
25	Since commercial hunters drastically reduced their numbers.
26	Under government protection, the sea otter population has recovered (laws/legal protection)
27	For example, in 1989
28	Up to 5,000 sea otters perished
29	When the Exxon Valdez spilled oil
30	In Prince William Sound, Alaska