

A Light That Keeps Glowing



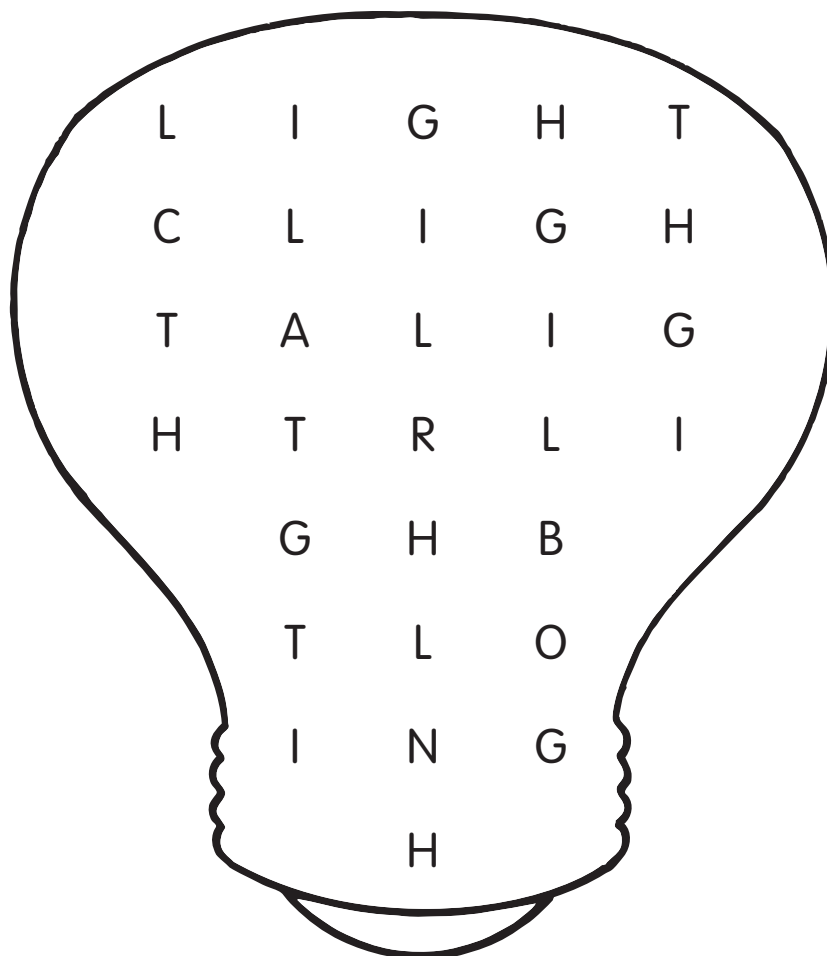
Name: _____

People used to burn oil to make light. This light didn't last long, and the oil was dangerous. It was too easy to start a fire by tipping a lamp over.

Many inventors worked on creating an electric light. One of the most famous to do this was Thomas Edison. People say that he invented the light bulb, but he was not the only one who worked on this invention.

Edison and others tried to put many different materials in their light bulbs. Most of these materials didn't work. They burned out too quickly. Finally, a good material was found. This material was able to stay lit for over 1,200 hours!

Directions: Look at the light bulb. It is filled with letters. Cross out every letter that is in the word **LIGHT**. Which letters are left? Write those letters in order to spell the name of the material that made electric light possible.



Write the name of the material here:

Failures That Became Successes



Name: _____

Not all great inventions were planned. In fact, some things we use all the time started out as failures.

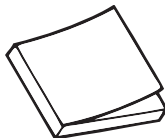
A sticky note is a piece of paper that you can write on and put just about anywhere. It is just the right amount of sticky. You can move it, and the paper won't tear. Well, the glue that makes sticky notes so useful was not what the inventor meant to make. His name was Spencer Silver. He was trying to make a really strong glue. Instead, it was very weak. Still, he thought his new glue could be useful. No one would listen. Years later, a man named Arthur Fry believed in Silver's invention. Together, Fry and Silver made sticky notes.

Who doesn't like chocolate chip cookies? They were another mistake. A baker named Ruth Wakefield ran out of baker's chocolate. She tried using a different type of chocolate, but it didn't melt into the cookie. The chunks just got soft. She tasted her mistake and realized it was delicious!

Then there's the story of a Scottish scientist named Alexander Fleming. One day, he forgot to put a lid on one of his lab dishes. Something in the air landed in just the right place on the dish. Fleming noticed later that there were no bacteria in that spot. This led to the discovery of penicillin. Penicillin is a medicine that has saved millions of lives. It is still used today.

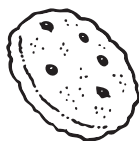
Directions: The facts about the three inventions are written below. For each one, there is one "fact" that is not true. Find it and cross it out.

1. **Glue for Sticky Notes**



invented by Spencer Silver
didn't tear paper when removed
became successful right away

2. **Chocolate Chip Cookies**



invented by Ruth Fry
used the wrong kind of chocolate
new cookie tasted great

3. **Penicillin**



discovered by an American scientist
found after a lid wasn't closed
is still used today as medicine



Warm-Up 106

Word Study

Name: _____

There are many different types of scientist. Some scientists study animals, some study plants, and some study rocks. Some scientists use microscopes to study tiny things. Other scientists use telescopes to study huge planets and stars. Each type of scientist has a different name.

Directions: It's time to match the name of a scientist with what he or she does. Use the alphabet key to fill in the letters of each scientist's name. The first one has been done for you.

Alphabet Key

a 1	b 2	c 3	d 4	e 5	f 6	g 7	h 8	i 9	j 10	k 11	l 12	m 13
n 14	o 15	p 16	q 17	r 18	s 19	t 20	u 21	v 22	w 23	x 24	y 25	z 26

	Name of the Scientist	What He or She Studies
1.	$\frac{b}{2}$ $\frac{o}{15}$ $\frac{t}{20}$ $\frac{a}{1}$ $\frac{n}{14}$ $\frac{i}{9}$ $\frac{s}{19}$ $\frac{t}{20}$	plants
2.	$\frac{\quad}{26}$ $\frac{\quad}{15}$ $\frac{\quad}{15}$ $\frac{\quad}{12}$ $\frac{\quad}{15}$ $\frac{\quad}{7}$ $\frac{\quad}{9}$ $\frac{\quad}{19}$ $\frac{\quad}{20}$	animals
3.	$\frac{\quad}{7}$ $\frac{\quad}{5}$ $\frac{\quad}{15}$ $\frac{\quad}{12}$ $\frac{\quad}{15}$ $\frac{\quad}{7}$ $\frac{\quad}{9}$ $\frac{\quad}{19}$ $\frac{\quad}{20}$	Earth and its history
4.	$\frac{\quad}{16}$ $\frac{\quad}{8}$ $\frac{\quad}{25}$ $\frac{\quad}{19}$ $\frac{\quad}{9}$ $\frac{\quad}{3}$ $\frac{\quad}{9}$ $\frac{\quad}{19}$ $\frac{\quad}{20}$	matter and energy
5.	$\frac{\quad}{12}$ $\frac{\quad}{9}$ $\frac{\quad}{14}$ $\frac{\quad}{7}$ $\frac{\quad}{21}$ $\frac{\quad}{9}$ $\frac{\quad}{19}$ $\frac{\quad}{20}$	human language
6.	$\frac{\quad}{3}$ $\frac{\quad}{25}$ $\frac{\quad}{20}$ $\frac{\quad}{15}$ $\frac{\quad}{12}$ $\frac{\quad}{15}$ $\frac{\quad}{7}$ $\frac{\quad}{9}$ $\frac{\quad}{19}$ $\frac{\quad}{20}$	cells



Unit 11

The Importance of Good Health (page 98)

1. C
2. A
3. A

What Am I?: doctor

Nature's Perfect Drink (page 99)

1. *circled*: person running, sick person
2. *circled*: apple, celery

Burning Calories (page 101)

1. B
2. B
3. C

How Much Sleep Do You Need? (page 102)

1. 14
2. 8
3. Answers may vary.
4. B
5. We need more sleep when we are younger.
(Accept reasonable responses.)

An Army on the Inside (page 103)

Part 1: The neck, armpits, and knees should be circled.

Part 2: Line 1: immune system; Line 2: white

Word Study (page 105)

1. audiologist — ears and hearing
2. cardiologist — heart
3. dentist — teeth
4. dermatologist — skin
5. gastroenterologist — stomach
6. podiatrist — feet and ankles
7. immunologist — immune system

Unit 12

A World Built on Ideas (page 106)

1. B
2. C

How Scientists Must Think (page 107)

Colored bubbles:

Use the senses to observe.

Do experiments.

Run tests and get results.

Check results over and over again.

Bubbles with an X:

Find results once and quit looking.

Ignore the results that you don't like.

Make a guess and pretend that it's correct.

A Light That Keeps Glowing (page 109)

carbon

Who Invented What? (page 110)

Tim Berners-Lee — Internet

Philo Farnsworth — television

Guglielmo Marconi — radio

Charles Strite — pop-up toaster

Lester Wire — electric traffic light

Failures That Became Successes (page 111)

The following should be crossed out.

1. became successful right away
2. invented by Ruth Fry
3. discovered by an American scientist

Word Study (page 112)

1. botanist
2. zoologist
3. geologist
4. physicist
5. linguist
6. cytologist

Unit 13

What's the Matter? (page 113)

1. A
2. C
3. B
4. The ice has shape because it is a solid.

As a Matter of Fact (page 115)

- | | |
|-----------|----------|
| 1. solid | 5. gas |
| 2. solid | 6. gas |
| 3. liquid | 7. solid |
| 4. liquid | 8. gas |

Liquids and Solids (page 116)

1. the milk — liquid; the carton — solid
2. the bottle — solid; the juice — liquid
3. the cup — solid; the water — liquid
4. the oil — liquid; the can — solid
5. the bowl — solid; the water — liquid;
the fish — solid

Getting Back in Shape (page 117)

1. yes
2. no
3. no
4. yes
5. no

All Shook Up and Nowhere to Go (page 118)

1. solid
2. The juice does not have carbon dioxide in it.