

LIGHT AND SPECTRUM

COMPREHENSION

FILL IN THE BLANK

Use the words below to fill in the reading.

block	translucent
longer	visible
optics	waves

beam of energy that moves quickly in small particles called photons. The remaining spectrum is made up of electromagnetic waves with different wavelengths that can move through the atmosphere to the human eye. The study of light is known as optics. The study of light is known as ophthalmology. Light has both electric and magnetic fields and can travel through matter (air, glass, or water). Objects that are transparent allow light to pass through them. Objects that are opaque do not allow light to pass through them. Like any other wave, wavelength and frequency are related. Wavelength is the distance between the crests of two waves. Frequency describes the number of cycles of a wave that pass a given point in a given time interval. When there is a high frequency, the wavelength is low, and when the frequency is low, the wavelength is high. The frequency and wavelength of a wave are related by the equation: $f = \frac{c}{\lambda}$, where f is frequency, c is the speed of light, and λ is wavelength.

TASK 5: TRUE OR FALSE

Directions: Answer each question below by coloring in the box of the TRUE statements. Next, unscramble the word using the large bold letters of only the TRUE statements.

Light has both electric and magnetic fields.	It takes sunlight almost thirty minutes to reach Earth.	The color between 400-484 terahertz is yellow.	The color green is a combination of all of the colors.
E	L	M	H
The study of light is known as ophthalmology.	Objects that block light from traveling through them are called opaque.	A wavelength is the distance between the crests of two waves.	Visible light is seen when it is reflected off objects.
J	E	C	R
Humans can only detect wavelengths that are between 380 and 700 nanometers.	The electromagnetic spectrum is made up of neurons.	Light can also be referred to as electromagnetic radiation.	When light passes through matter, the matter is called transparent.
U	G	F	N
Violet light has the shortest wavelength.	Light waves are made up of gigabytes.	Blue light has the longest wavelength.	When a room is dark, there is no light to be absorbed or reflected.
Y	W	A	Q

SECRET WORD



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TASK 4: TEXT

Directions: Find the answers in the text or color them with the correct color.

YELLOW

BLUE

GREEN

PINK

What color is ...

What are ...

Who was the first ... between ...

What are light w ...

What are trans ...

How fast does li ...

Directions: Place the following ... sentence in the reading pa ...

Some ... do ...

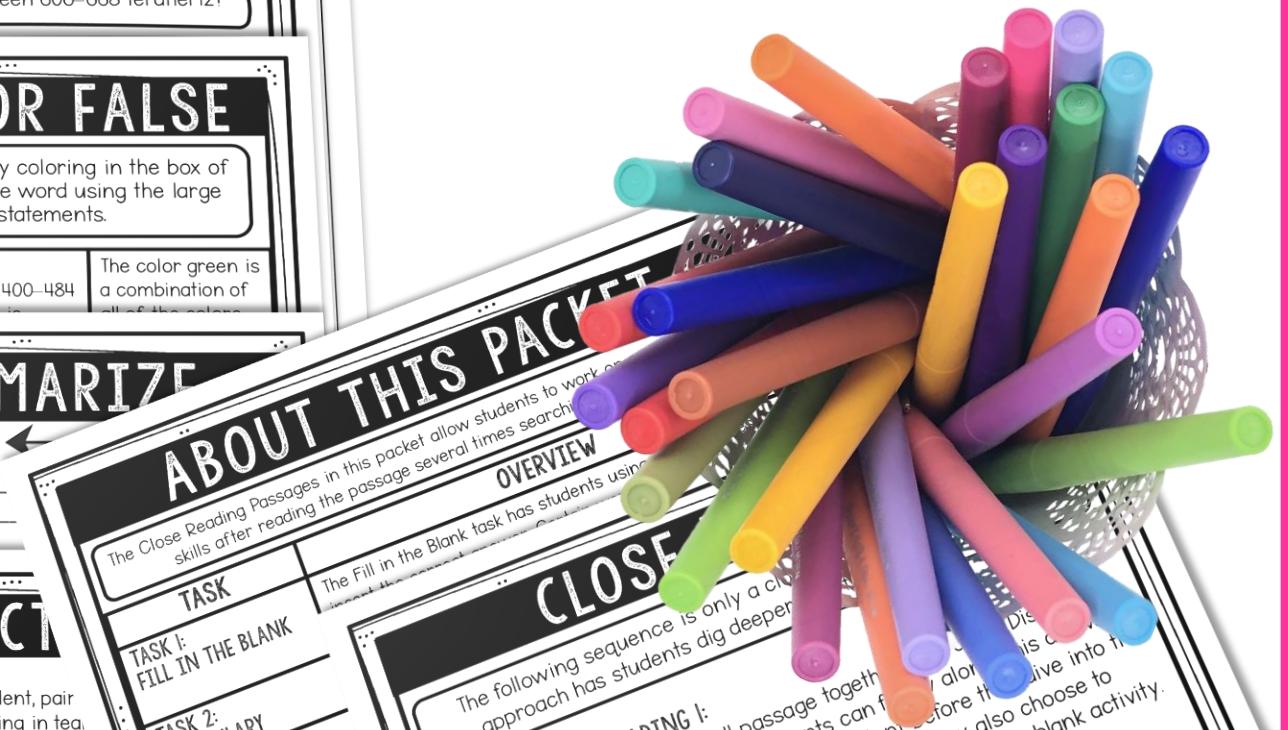
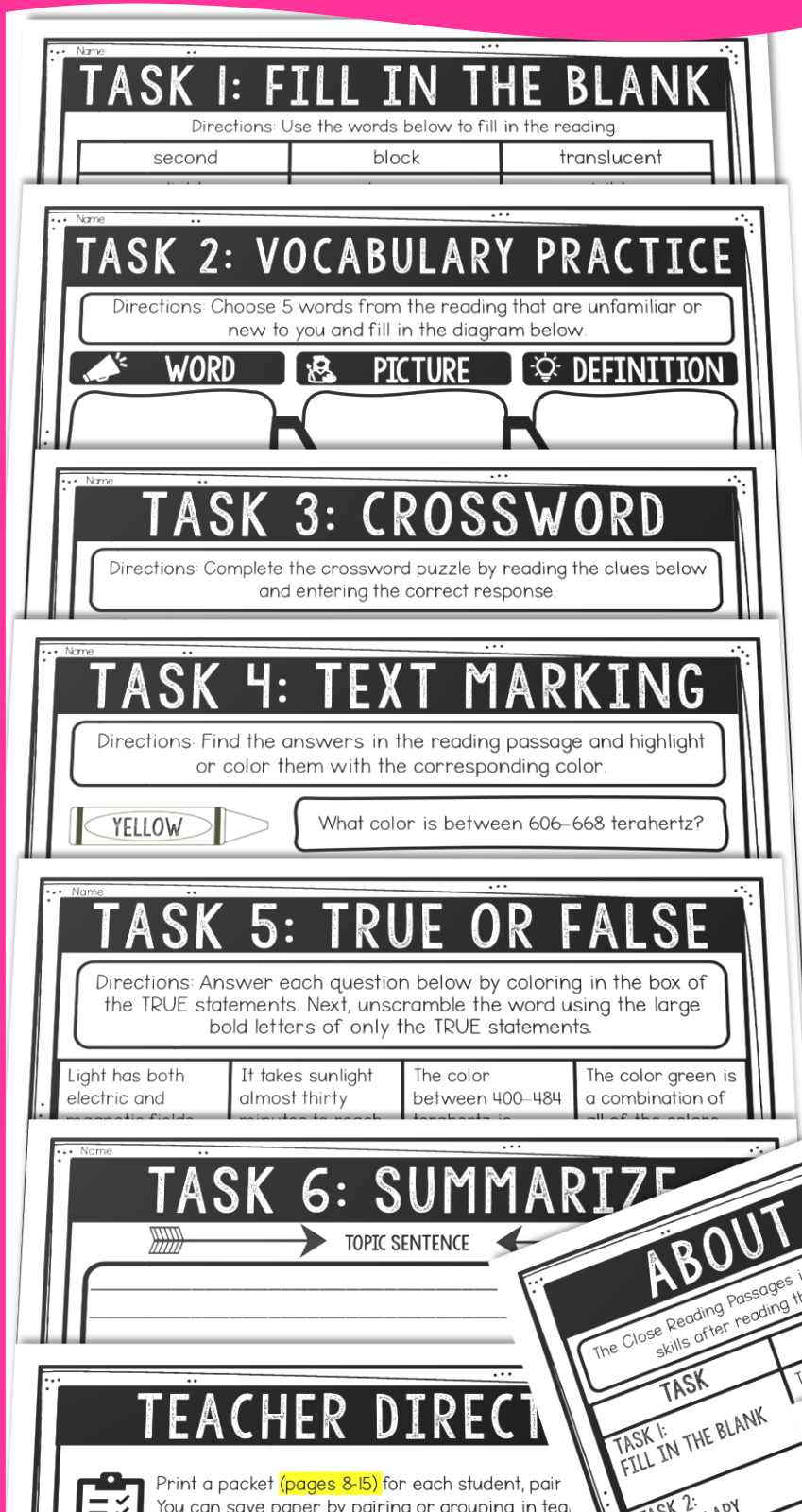
S ... ex ...

st ...

THINK TANK

WHAT'S INCLUDED?

- ✓ Task 1: Fill in the Blank
- ✓ Task 2: Vocabulary
- ✓ Task 3: Crossword Puzzle
- ✓ Task 4: Text Marking
- ✓ Task 5: True or False
- ✓ Task 6: Graphic Organizer
- ✓ Student Completion Sheet
- ✓ Teacher Answer Key
- ✓ Teacher Guide



6 TASKS

6: SUMMARIZE

TOPIC SENTENCE

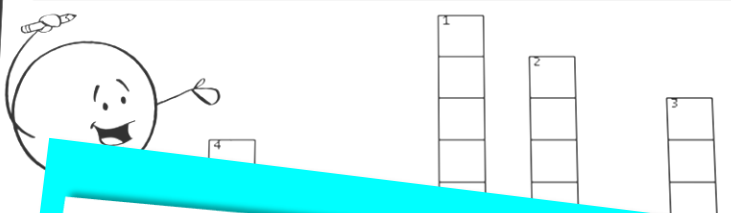
SUPPORTING DETAIL

SUPPORTING DETAIL

DETAIL

TASK 3: CROSSWORD

Directions: Complete the crossword puzzle by reading the clues below and entering the correct response.



TASK 2: VOCAB

Directions: Choose 5 words from new to you and fill in the boxes.

WORD

WORD

WORD

WORD

WORD

5: TRUE OR FALSE

Answer each question below by coloring in the box of the statement. Next, unscramble the word using the large bold letters of only the TRUE statements.

<p>It takes sunlight almost thirty minutes to reach Earth.</p> <p>E</p>	<p>The color between 400-484 terahertz is yellow.</p> <p>M</p>
<p>Objects that block light from traveling through them are called opaque.</p> <p>J</p>	<p>A wavelength is the distance between the crests of two waves.</p> <p>C</p>
<p>The electromagnetic spectrum includes radio waves, microwaves, infrared, visible light, ultraviolet, and gamma rays.</p> <p>L</p>	<p>Visible light is a combination of all the colors of the rainbow.</p> <p>V</p>
<p>Light waves are made up of photons.</p> <p>U</p>	<p>Blue light has the longest wavelength.</p> <p>B</p>

TASK 1: FILL IN THE BLANKS

Directions: Use the words below to fill in the blanks in the reading passage.

second	block	translucent
light	longer	visible
gamma	optics	wavelength

Light is a beam of energy that moves quickly in small particles also known as "quanta" of electromagnetic energy. The electromagnetic spectrum is made up of light with different wavelengths that can travel through empty space. The wavelengths that are _____ to the human eye are called visible light. The remaining spectrum is made up of electromagnetic waves that are all around and is used in daily life. These waves are invisible and include radio waves which are used to send data, microwave ovens to cook food, and _____ rays that are used in medicine to cure cancer. Light has both electric and magnetic fields and is called as electromagnetic radiation. The study of light is known as optics. When light passes through matter (air, glass, or water), it is called transparent. Objects that _____ light from passing through them, such as a book or table, are called opaque. Objects that allow just some light to pass through) are called _____.

_____ is the distance between the crests of two waves. Wavelength and frequency are _____ of each other. Wavelength is the distance between the crests of two waves. Frequency describes the number of cycles of a wave that pass a given point in a given time. When there is a high frequency, the wavelength is low, the wave is short. When the frequency is low, the wavelength is long. The frequency of 405 terahertz and goes up to _____ (frequency).

Nothing moves faster than the speed of light which is 186,282 miles per second. The speed of light is based on the objects it is traveling through. Light that is traveling through its path can cause light to bend. This wave-like

TASK 4: TEXT

Directions: Find the answers in the text or color them with the color.

YELLOW

BLUE

GREEN

PINK

YELLOW

BLUE

What color is _____?

What are _____?

Who was the first to _____ between _____?

What are light waves _____?

What are translucent _____?

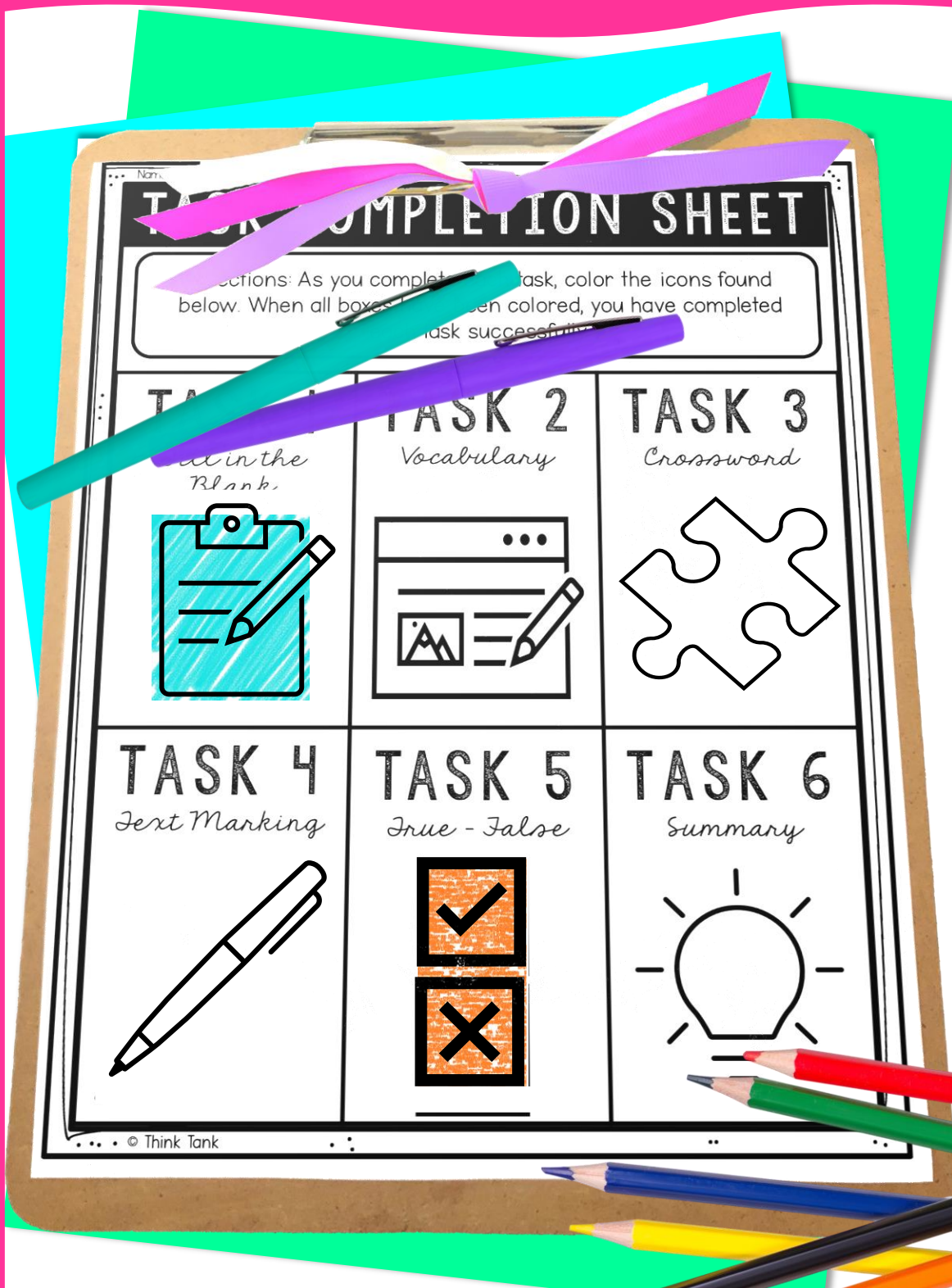
How fast does light _____?

Directions: Place the following main idea sentence in the reading passage.

? Something you have a question do not understand

! Something that _____

EARN ICONS



As students complete each task, they will bring you their answers for you to quickly check. After checking, they can color in the box on the completion sheet. They will repeat the process until all 6 boxes are colored in.