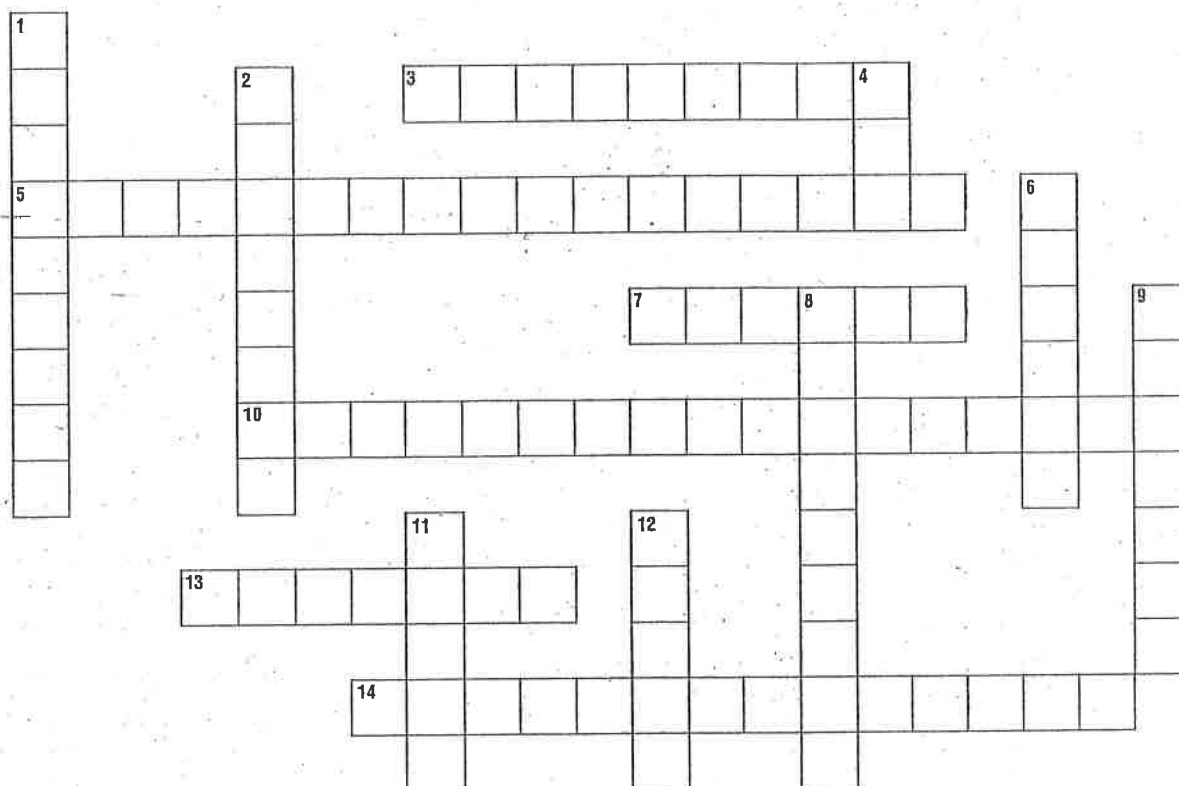


# SECTION 1

## Reinforcement

## Stars

**Directions:** Use the clues provided to solve the crossword puzzle.



### Across

3. The Big Dipper is part of this constellation. (2 words)
5. This is the amount of starlight received on Earth. (2 words)
7. Our Sun is a star of this color.
10. This the actual amount of light that a star gives off. (2 words)
13. This is another name for the North Star.
14. These are groups of stars that form patterns.
4. Relatively cool stars look either orange or this color.
6. This is the brightest star in the sky.
8. This is the distance of about 9.5 trillion kilometers that light travels in one year. (2 words)
9. Astronomers study these to learn about the properties of stars.
11. This constellation, named after a mythical hunter, includes the star Betelgeuse.
12. Even though this star has an absolute magnitude greater than that of Sirius, it looks dimmer from Earth since it's 100 times farther away.

### Down

1. The North Star is in this constellation. (2 words)
2. This is the apparent shift in position of an object when viewed from two different places.

## SECTION

## 1

## Enrichment

## Comparing Apparent Magnitudes

**Directions:** Study the following tables and then answer the questions below. Table 1 identifies the apparent magnitudes of objects that can be seen in the sky. The naked-eye limit and the telescope limit indicate the minimum magnitude of sky objects that can be seen. Table 2 identifies the differences in apparent magnitude and the ratio of light that is emitted based on the differences.

Table 1

Object	Apparent magnitude
Sun	-26.5
Full moon	-12.5
Venus (at its brightest)	-4.0
Jupiter, Mars (at their brightest)	-2.0
Sirius	-1.5
Naked-eye limit	6.5
15-cm telescope limit	13.0

Table 2

Difference in apparent magnitude	Ratio of light
0.0	1:1
1.0	2.5:1
2.0	6.3:1
3.0	16:1
4.0	40:1
5.0	100:1
10.0	10 000:1
15.0	1 000 000:1
20.0	100 000 000:1
25.0	10 000 000 000:1
30.0	1 000 000 000 000:1

- What is the apparent magnitude of the Sun?  
\_\_\_\_\_
- What is the apparent magnitude of Sirius?  
\_\_\_\_\_
- What is the difference in the magnitudes of the Sun and Sirius? \_\_\_\_\_
- How much more light does the Sun provide than Sirius? \_\_\_\_\_
- What is the difference in the Sun's apparent magnitude from that of the full Moon? \_\_\_\_\_
- About how much more light does the Sun provide than the full Moon? \_\_\_\_\_
- What is the greatest apparent magnitude that can be viewed by the naked eye? \_\_\_\_\_
- What is the difference in the apparent magnitude of the Sun and an object with the greatest apparent magnitude that can be viewed by the naked eye? \_\_\_\_\_
- How much more light does the Sun give off than an object with the least apparent magnitude that can be viewed by the naked eye? \_\_\_\_\_
- If a star has an apparent magnitude of 7.5, would you be able to see it with the aid of a 15 cm telescope? \_\_\_\_\_
- What is the difference in magnitudes between Venus and Mars at their brightest? \_\_\_\_\_
- What is the ratio of light of Venus and Mars at their brightest? \_\_\_\_\_