41. The chart that contrasts the geocentric model of the solar system with the current heliocentric model is

A.

Geocentric Model	Current Heliocentric Model
• Planets orbit the Sun	• Planets orbit Earth
• Orbits are circular in shape	• Orbits are elliptical in shape

B.

Geocentric Model	Current Heliocentric Model
• Planets orbit the Sun	• Planets orbit Earth
• Orbits are elliptical in shape	• Orbits are circular in shape

C.

Geocentric Model	Current Heliocentric Model
• Planets orbit Earth	• Planets orbit the Sun
• Orbits are circular in shape	• Orbits are elliptical in shape

D.

Geocentric Model	Current Heliocentric Model
• Planets orbit Earth	• Planets orbit the Sun
• Orbits are elliptical in shape	• Orbits are circular in shape

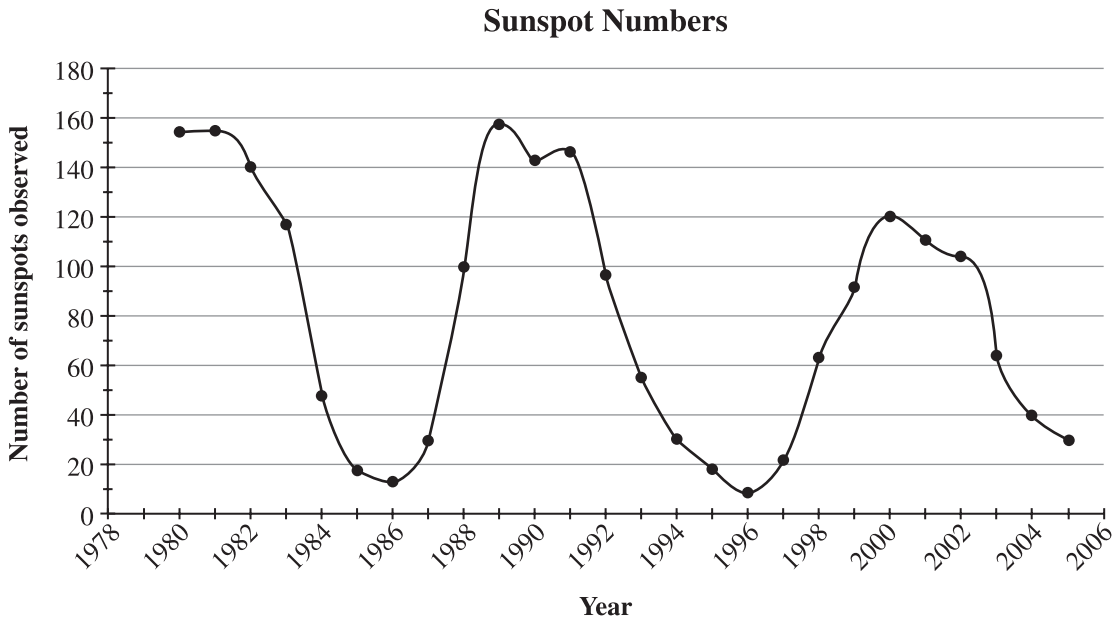
42. *A* ___***i***___ *consists of stars, planets, and dust, which are formed from a* ___***ii***___ .

The statement above is completed by the information in row

Row	*i*	*ii*
A.	constellation	nebula
B.	nebula	galaxy
C.	galaxy	nebula
D.	galaxy	constellation

Use the following information to answer question 43.

Sunspots are associated with solar flares and coronal mass ejections (CMEs). The number of sunspots alternates between periods of high numbers (solar maximum) and periods of low numbers (solar minimum).



—Data obtained from the *National Geophysical Data Center*

43. *In the year 2011, there will* ***most likely*** *be* ___***i***___ *in CMEs associated with a solar* ___***ii***___ .

The statement above is completed by the information in row

Row	***i***	***ii***
A.	an increase	maximum
B.	an increase	minimum
C.	a decrease	maximum
D.	a decrease	minimum

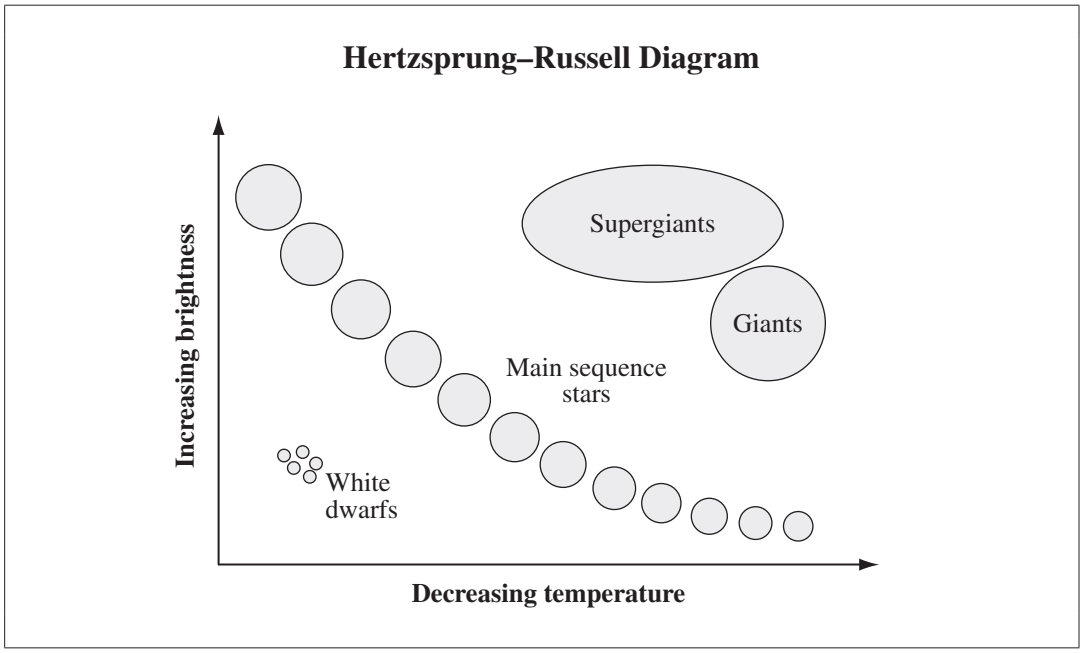
44. Parallax and triangulation can be used to determine the

A. distance between a star and a planet
B. magnitude of a star's brightness
C. speed a planet is orbiting a star
D. composition of a star or planet

45. Which of the following technologies provides the **least** information about celestial bodies in our solar system?

A. Telescope
B. Interferometry
C. Spectral analysis
D. Global Positioning System

Use the following information to answer question 46.



46. When compared with a giant star, a white dwarf star is

A. brighter and hotter
B. brighter and colder
C. dimmer and hotter
D. dimmer and colder

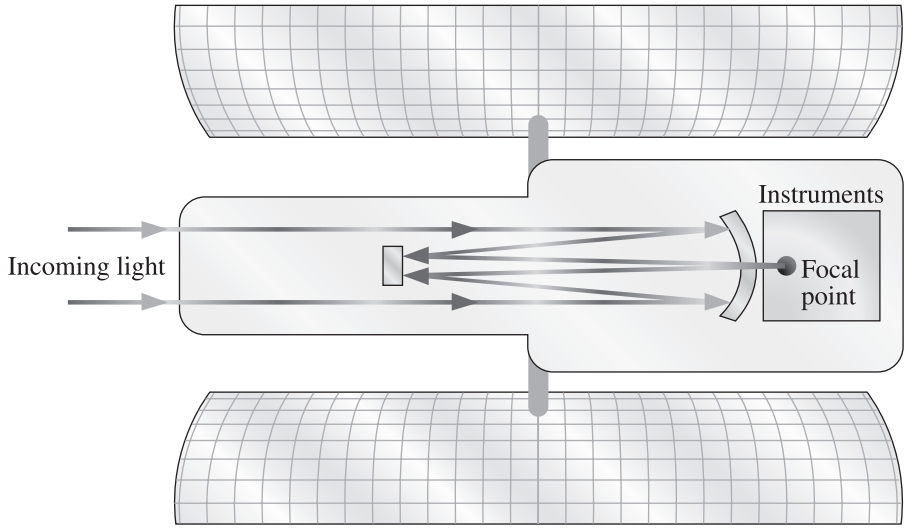
Use the following illustration to answer question 47.

47. What is the student in the illustration above **most likely** trying to determine?

A. The altitude of the sphere
B. The azimuth of the sphere
C. The distance to the sphere
D. The diameter of the sphere

Use the following information to answer question 48.

How Light Travels Through the Body of the Hubble Space Telescope



48. *The Hubble Space Telescope uses* ___***i***___ *to* ___***ii***___ *the light into the focal point.*

The statement above is completed by the information in row

Row	***i***	***ii***
A.	lenses	reflect
B.	lenses	refract
C.	mirrors	reflect
D.	mirrors	refract

Use the following information to answer question 49.

Information about Jupiter

Length of year = 142 Earth months
Length of day = 10 Earth hours

49. *Jupiter spins on its axis* ___***i***___ *than Earth does, and it has an orbit that is* ___***ii***___ *than Earth's.*

The statement above is completed by the information in row

Row	*i*	*ii*
A.	slower	larger
B.	slower	smaller
C.	faster	larger
D.	faster	smaller

Use the following information to answer numerical-response question 5.

Over time, several technologies have been developed to study and explore space.

Technologies

1 Shuttle
2 Radio telescope
3 Probe

Numerical Response

5. Match each of the technologies numbered above with its description given below.

Designed to detect
low-frequency energy from space _____ (Record in the **first** column)

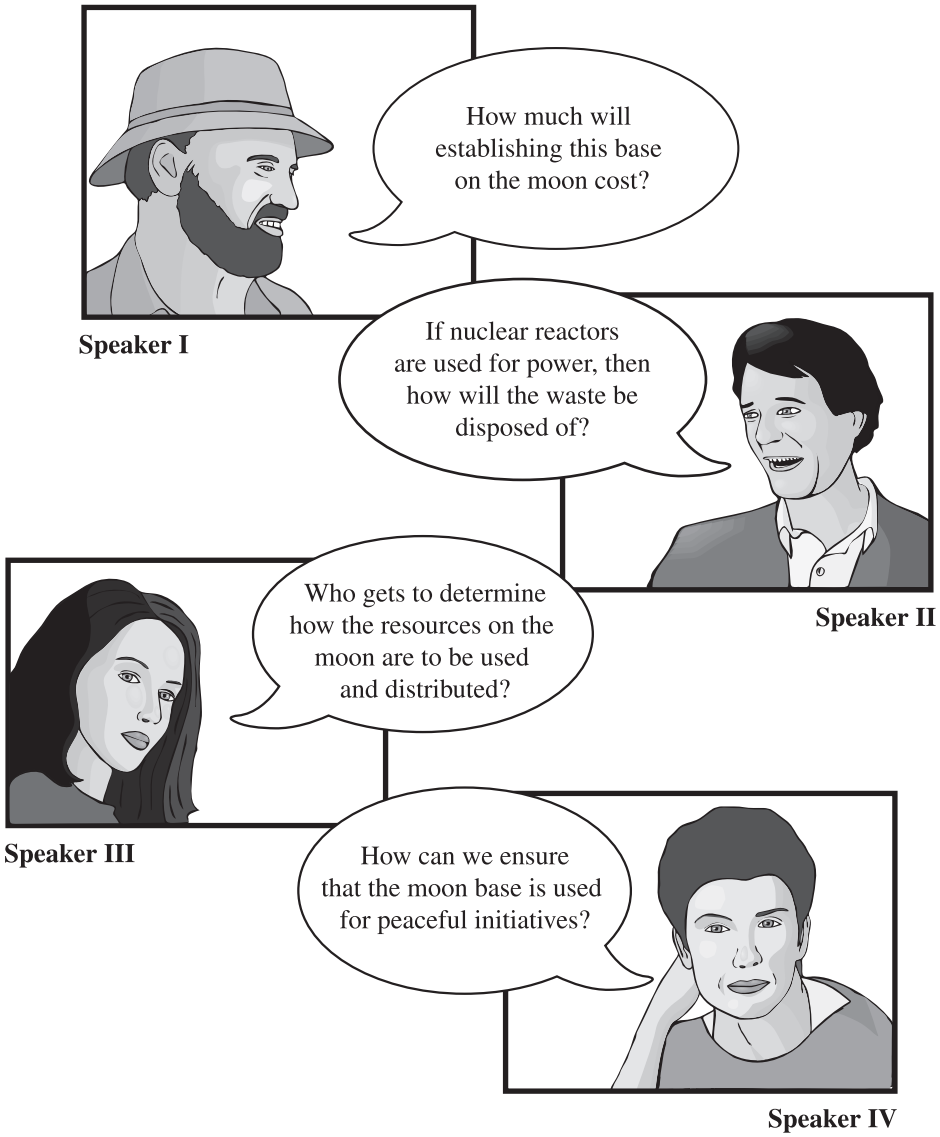
Designed to explore
celestial bodies beyond the Moon _____ (Record in the **second** column)

Designed to transport
equipment to the International Space Station _____ (Record in the **third** column)

(Record all **three digits** of your answer in the numerical-response section on the answer sheet.)

Use the following information to answer question 50.

The year 2020 is the target date for the creation of a base on the Moon.



50. Which speaker's question reflects an environmental perspective?

A. Speaker I
B. Speaker II
C. Speaker III
D. Speaker IV

Question	Reporting Category	Key	Difficulty %	Topic	Item Description
38	Skills	B	67.4	Electrical Principals & Technologies	Describe a negative impact of hydroelectric power generation
39	Skills	D	53.4	Electrical Principals & Technologies	Identify the part of a St. Louis motor that functions as an electromagnet
40	Knowledge	A	73.6	Electrical Principals & Technologies	Recognize a byproduct of low efficiency devices
41	Skills	C	70.3	Space Exploration	Identify differences between the geocentric and heliocentric models of the universe
42	Knowledge	C	71.5	Space Exploration	Recognize the composition of galaxies and what they originate from
43	Skills	A	59.6	Space Exploration	Predict future conditions associated with the sun given data presented in a line graph
44	Knowledge	A	81.8	Space Exploration	Recognize the use of parallax and triangulation
45	Knowledge	D	61.7	Space Exploration	Identify from a list a technology that has had the least impact on the study of space
46	Skills	C	48.2	Space Exploration	Analyze a Hertzsprung-Russell diagram to determine the relative brightness and temperature of a white dwarf star
47	Skills	A	56.1	Space Exploration	Analyze an illustration of an astrolabe experiment to determine what is being measured
48	Skills	C	73.7	Space Exploration	Identify the characteristics of a reflecting telescope
49	Skills	C	57.1	Space Exploration	Evaluate information about Jupiter and compare it to the characteristics of the Earth
NR5	Knowledge	231	70.0	Space Exploration	Classify space technologies according to their functions
50	Knowledge	B	87.6	Space Exploration	Identify an environmental perspective associated with the establishment of a base on the moon