





# Space & Rocketry-BBBBBB

## V6.0 Study Guide

Circle the correct answers to these questions as you come upon them during your next seven lessons. This study guide can then be used as a resource for your final post test!

1. The study of the universe and all the objects in it is (1- THE EARLY HISTORY OF ASTRONOMY) .  
*history - chemistry - astronomy - meteorology*
2. The (1- THE EARLY HISTORY OF ASTRONOMY) system places the sun at the center of the solar system with the planets orbiting it. *Ptolemaic - Tychonic - Galactic - Copernican*
3. The first astronomers were (1- THE EARLY HISTORY OF ASTRONOMY) .  
*Oxford graduates - the astronauts - from ancient civilizations - part of the Renaissance*
4. (1- THE EARLY HISTORY OF ASTRONOMY) was the first astronomer to use a telescope to study the universe.  
*Copernicus - Ptolemy - Galileo - Sir Isaac Newton*
5. Groups of stars, cosmic dust, and gas held together by gravity are called (1- MODERN ASTRONOMY) .  
*novas - supernovas - pulsars - galaxies*
6. Astronomers study (1-THE EARLY HISTORY OF ASTRONOMY-Screen 6 & Modern Astron.) to identify patterns which give meaning to the universe.  
*planets - stars - galaxies - all of the answers*
7. New theories in astronomy are often (1- Lesson Review: The History of Space Theories) when first proposed. *enthusiastically accepted - rejected - proven incorrect - not related to facts*
8. The way rockets work is explained by Newton's third law, "For every (2-NEWTONS LAWS & ROCKETRY) there is an equal and opposite \_\_\_\_\_".  
*Action, reaction - friction, inertia - temperature degree - acceleration, motion*
9. Dr. Robert Goddard launched the first (2-THE HISTORY OF ROCKETS) .  
*space shuttle - Skylab - liquid-propellant rocket - lunar lander*
10. A rocket moves (2-NEWTONS LAWS & ROCKETRY) its exhaust.  
*in the same direction as - parallel to - away from - perpendicular to*
11. In July of 1969, Neil Armstrong and Edwin "Buzz" Aldrin, Jr. (2-THE HISTORY OF ROCKETS) .  
*were the first to orbit the Earth - walked on the moon - flew the first space shuttle mission - landed on Mars*
12. In 1898, (2-THE HISTORY OF ROCKETS), a Russian schoolteacher, was one of the first to write about the possibility of rocket flight in space. *Konstantin Tsiolkovsky - Robert Goddard - Hermann J. Oberth - Yuri Gagarin*
13. (2-THE HISTORY OF ROCKETS) worked with long-range liquid rockets, and his writings inspired other scientists and engineers. *Konstantin Tsiolkovsky - Robert Goddard - Hermann J. Oberth - Yuri Gagarin*
14. Blowing up a balloon and letting it jet around the room as air escapes is a demonstration of (2-NEWTONS LAWS & ROCKETRY) .  
*planetary orbits - the action/reaction law - buoyancy - quantum mechanics*

15. The space shuttle is (3- THE SPACE SHUTTLE) .  
*a reusable space vehicle - a combination of a rocket and an airplane - capable of carrying heavy payloads - all of the answers*
16. Sally K. Ride, the (3- SHUTTLE MISSIONS), was on the seventh space shuttle mission.  
*ground control manager - hostess – first American women astronaut - Congressional liaison*
17. In order to be able to study Earth, the sun, and humans' ability to live and work in space, (4- LIVING IN SPACE) were developed and launched.  
*Saturn v rockets - the Mercury spacecraft - space stations - starships*
18. In order to live and work in space, your "home" must be (4- LIVING IN SPACE) : it must have or be able to create everything necessary to support human life.  
*interdependent - self supporting - dormant - internally baffled*
19. The inner planets are (5- THE PLANETS) .  
*giant gas balls - small and have hard surfaces made of iron and rock - made of ice and hail - asteroids*
20. The outer planets are (5- THE PLANETS) .  
*giant balls of gas - collections of small rocky objects – "dirty" snowballs - small and made of iron and rock*
21. The sun is actually (5- THE SUN) .  
*a giant nuclear reactor - a planet - made of frozen methane - an alien spaceship*
22. (5- THE SUN) holds planets in a curved path around the sun.  
*fusion - fission - gravity - gamma radiation*
23. The (5- THE PLANETS) is a collection of small planet-like objects traveling around the sun between the inner and outer planets.  
*Milky Way - asteroid belt - Mars Observatory - inversion zone*
24. It takes about (5- THE SUN) for light from the sun to reach the Earth.  
*eight hours - eight days - eight years - eight minutes*
25. Scientists measure distances in space using (6- DEEP SPACE) .  
*kilometers - star multiples - light years - the galactic constant*
26. A (6- NOVAS AND SUPERNOVAS) is a star that suddenly becomes very bright and then begins to fade slowly. *nova - nebula - pulsar - supernova*
27. A (6- NOVAS AND SUPERNOVAS) is a star that becomes very bright and explodes.  
*nova - nebula - pulsar - supernova*
28. Powerful computer systems developed for space exploration and now adapted for use in industry are examples of (7- SPACE PRODUCTS) .  
*space stations - space spin offs - quantum theory - space colonization*
29. New alloys developed in space are often (7- SPACE PRODUCTS- TECHNOLOGY TEXTBOOK) than alloys processed on Earth. *easier to make - harder to make - more dense - less effective*
30. Which of the following are examples of space spin-offs? (7- SPACE PRODUCTS- TECHNOLOGY TEXTBOOK)  
*forest fire mapping systems - battery powered tools - airline seat cushions - all of the above*

# "OBSERVATION LOG" Worksheet

Some of the information below will be found in the lesson and the video's in the lesson.

Some of the information will be found in the "Deep Space Explorer" software.

Some will be found at the Internet links: [www.wikipedia.org](http://www.wikipedia.org) or [www.nasa.gov](http://www.nasa.gov) or [www.space.com](http://www.space.com)

In "Deep Space Explorer", be sure you follow directions **Steps 8 & 9 to get the "Show Info" and the "Online Info"**. You should be able to fill all the lines.

\*\* **"Other Significant Information"** can include: Temperature, Size of Planet, Number of Moons, Mountains, Gases, Atmosphere, Orbit, Nicknames, what type of core, what the planet is made of, clouds, mountains, craters, if it has rings and the number order of the planet. Apparent Magnitude is the size the planet appears from where you are when you use Deep Space Explorer.

**Target Object: MERCURY # \_\_\_\_\_** Size: \_\_\_\_\_

Length of Year: \_\_\_\_\_

Distance from Sun: \_\_\_\_\_

Two Other Significant Information Items: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Target Object: VENUS # \_\_\_\_\_** Size: \_\_\_\_\_

Length of Year: \_\_\_\_\_

Distance from Sun: \_\_\_\_\_

Two Other Significant Information Items: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Target Object: EARTH # \_\_\_\_\_** Size: \_\_\_\_\_

Length of Year: \_\_\_\_\_

Two Other Significant Information Items: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Target Object: MARS # \_\_\_\_\_** Size: \_\_\_\_\_

Length of Year: \_\_\_\_\_

Distance from Sun: \_\_\_\_\_

Two Other Significant Information Items: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

**Target Object: JUPITER # \_\_\_\_\_** Size: \_\_\_\_\_

Length of Year: \_\_\_\_\_

Distance from Sun: \_\_\_\_\_

Two Other Significant Information Items: \_\_\_\_\_

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**Target Object: SATURN # \_\_\_\_\_** Size: \_\_\_\_\_

Length of Year: \_\_\_\_\_

Distance from Sun: \_\_\_\_\_

Two Other Significant Information Items: \_\_\_\_\_

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**Target Object: URANUS # \_\_\_\_\_** Size: \_\_\_\_\_

Length of Year: \_\_\_\_\_

Distance from Sun: \_\_\_\_\_

Two Other Significant Information Items: \_\_\_\_\_

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**Target Object: NEPTUNE # \_\_\_\_\_** Size: \_\_\_\_\_

Length of Year: \_\_\_\_\_

Distance from Sun: \_\_\_\_\_

Two Other Significant Information Items: \_\_\_\_\_

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**Target Object: PLUTO # \_\_\_\_\_** Size: \_\_\_\_\_

Length of Year: \_\_\_\_\_

Distance from Sun: \_\_\_\_\_

Two Other Significant Information Items: \_\_\_\_\_

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# Stargazer's Log

When you use the software you will need to find some of the information by right clicking on the star and then selecting "INFO". Some information will have to be taken by right clicking on the star and then clicking on "On Line".

1. Star Name: Our Sun

Radius: \_\_\_\_\_

Distance from Earth: \_\_\_\_\_

Apparent Magnitude: \_\_\_\_\_

Temperature: \_\_\_\_\_ Luminosity: \_\_\_\_\_

Other significant information from Internet: \_\_\_\_\_

\_\_\_\_\_

2. Star Name: **SIRIUS**

Radius: \_\_\_\_\_

Distance from Earth: \_\_\_\_\_

Apparent Magnitude: \_\_\_\_\_

Temperature: \_\_\_\_\_ Luminosity: \_\_\_\_\_

Other significant information from Internet: \_\_\_\_\_

\_\_\_\_\_

3. Star Name: **ALTAIR**

Radius: \_\_\_\_\_

Distance from Earth: \_\_\_\_\_

Apparent Magnitude: \_\_\_\_\_

Temperature: \_\_\_\_\_ Luminosity: \_\_\_\_\_

Other significant information from Internet: \_\_\_\_\_

\_\_\_\_\_

4. Star Name: **PROCYON**

Radius: \_\_\_\_\_

Distance from Earth: \_\_\_\_\_

Apparent Magnitude: \_\_\_\_\_

Temperature: \_\_\_\_\_ Luminosity: \_\_\_\_\_

Other significant information from Internet: \_\_\_\_\_

\_\_\_\_\_

5. Star Name: **ACTURUS**

Radius: \_\_\_\_\_

Distance from Earth: \_\_\_\_\_

Apparent Magnitude: \_\_\_\_\_

Temperature: \_\_\_\_\_ Luminosity: \_\_\_\_\_

Other significant information from Internet: \_\_\_\_\_

\_\_\_\_\_

6. Star Name: **VEGA**

Radius: \_\_\_\_\_

Distance from Earth: \_\_\_\_\_

Apparent Magnitude: \_\_\_\_\_

Temperature: \_\_\_\_\_ Luminosity: \_\_\_\_\_

Other significant information from Internet: \_\_\_\_\_

\_\_\_\_\_

7. Star Name: **RIGIL KENTAURUS**

Radius: \_\_\_\_\_

Distance from Earth: \_\_\_\_\_

Apparent Magnitude: \_\_\_\_\_

Temperature: \_\_\_\_\_ Luminosity: \_\_\_\_\_

Other significant information from Internet: \_\_\_\_\_

\_\_\_\_\_

8. The largest star viewed: \_\_\_\_\_

9. The farthest star (from Earth) viewed: \_\_\_\_\_

10. The smallest star viewed: \_\_\_\_\_

11. The closest star (to Earth) viewed: \_\_\_\_\_

# ROCKET GRADING RUBRIC (New)

|   | <b>3 Points<br/>Excellent</b> | <b>2 Points<br/>Good</b> | <b>1 Points<br/>Fair</b> | <b>0 Points<br/>Not Done</b> |  |
|---|-------------------------------|--------------------------|--------------------------|------------------------------|--|
| <b>A. Engine Mount Assembly:</b> Measured & Glued Correctly, (Blue Tube is <b>even</b> with bottom of White Body Tube), metal hook is in correct location |                               |                          |                          |                              |  |
| <b>B. Shock Chord Mount Assembly:</b> attached flat against tube.   |                               |                          |                          |                              |  |
| <b>C. Fin Assembly:</b> Glued tight, not loose.   |                               |                          |                          |                              |  |
| <b>D. Launch Lug:</b> Straight, well glued (Hot Melt), in-between fins. No glue over hole   |                               |                          |                          |                              |  |
| <b>E. Nose Cone:</b> is loose and not tight when in place.  |                               |                          |                          |                              |  |
| <b>F. Parachute:</b> Packed correctly, small & spiral wrap.   |                               |                          |                          |                              |  |
| <b>G. Parachute &amp; Shock Chord</b> tied to the bottom of nosecone , glued.   |                               |                          |                          |                              |  |
| <b>H. Body Tube:</b> In good condition/ not smashed or dented.  |                               |                          |                          |                              |  |
| <b>I. Finishing Touches:</b> 5 Stickers, NEAT & "Name" bottom of Nosecone.  |                               |                          |                          |                              |  |
| <b>J. Wadding &amp; Engine with Igniter.</b> Loosely installed at bottom of tube.   |                               |                          |                          |                              |  |
| <b>**Extra Credit:</b> Painting ( <b>up to</b> 10 pts. )  |                               |                          |                          |                              |  |
| <b>TOTAL POINTS</b>   |                               |                          |                          |                              |  |

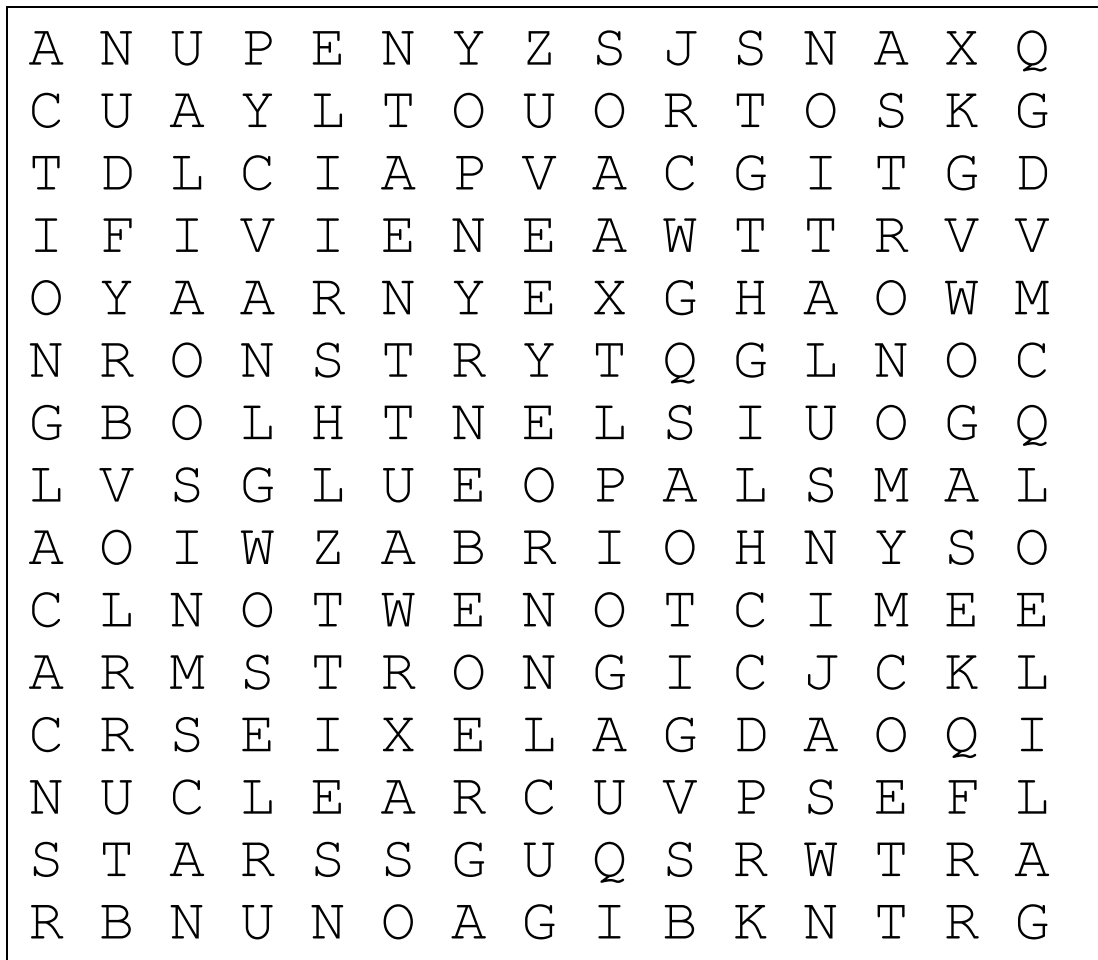
Extra Credit painting: smooth and even coats, complete coverage, no runs or drips, more than one color, extra detailing like stripes/spirals,

# ROCKET GRADING CRITERIA<sub>(old)</sub>

|  | <b>5 Points<br/>Excellent</b> | <b>4 Points<br/>Good</b> | <b>3 Points<br/>Fair</b> | <b>2 Points<br/>Below Ave.</b> | <b>1 Point<br/>Not Done or<br/>Far Below<br/>Ave.</b> |
|--|-------------------------------|--------------------------|--------------------------|--------------------------------|---|
| <b>A. Engine Mount Assembly:</b> Measured & Glued Correctly, (Blue Tube is even with bottom of White Body Tube), metal hook is in correct location                 |                               |                          |                          |                                |   |
| <b>B. Shock Chord Mount Assembly:</b> attached to body tube, <b>Parachute &amp; Shock Chord</b> (attached to Nosecone and is at the bottom of nosecone tube mount) |                               |                          |                          |                                |   |
| <b>C. Fin Assembly:</b> Glued Correctly to Body, is tightly attached, and is not lined up with a launch lug.   |                               |                          |                          |                                |   |
| <b>D. Launch Lug:</b> Straight, well glued (regular glue & Hot Melt), not lined up with fins.  |                               |                          |                          |                                |   |
| <b>E. Nose Cone:</b> is loose and not tight when in place, <b>Parachute:</b> Packed correctly, <b>Body Tube:</b> In good condition/ not smashed or dented.         |                               |                          |                          |                                |   |
| <b>F. Finishing Touches:</b> Minimum of 5 Stickers neatly done & "Name" on fins or bottom of Nosecone.   |                               |                          |                          |                                |   |
| <b>**Extra Credit:</b> Painting rocket ( <u>up to</u> 10 pts. possible)  |                               |                          |                          |                                |   |
| <b>TOTAL POINTS</b>  |                               |                          |                          |                                |   |

# Space & Rocketry

Wordsearch Version I



ACTION

ALLOY

ARMSTRONG

ASTEROIDS

ASTRONOMY

COPERNICAN

GALEXIES

GALILEO

GAS

GRAVITY

INSULATION

LIGHT

LIGHTYEARS

NEWTON

NOVA

NUCLEAR

PLANETS

REACTION

SPACE

STARS

SUPERNOVA

# SPACE & ROCKETRY

Wordsearch version II



ACTION

ALLOY

ARMSTRONG

ASTEROIDS

ASTRONOMY

COPERNICAN

GALEXIES

GALILEO

GAS

GRAVITY

INSULATION

LIGHT S

LIGHTYEARS

NEWTON

NOVA

NUCLEAR

PLANETS

REACTION

PACE

STARS

SUPERNOVA