

OPERATION COMET"

**Operation Comet Pre-Mission Vocabulary** 

## **CLC** Terms

Mission Commander – the person who is in charge of the astronauts onboard a space vehicle

Flight Director – the person who supervises a space mission from Mission Control

Simulator – an artificial environment created to resemble an actual place

Task Cards – a step-by-step set of written instructions for performing a job

<u>Airlock</u> – a device that permits the passage of people and objects between areas while minimizing the change of pressure and loss of air

Communication (COM) – means of sending or receiving information

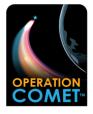
<u>Navigation (NAV)</u> – the science of getting ships, aircraft, or spacecraft from place to place, especially related to the method of determining position, course, and distance traveled

<u>Medical (MED)</u> – relating to the science of medicine, or to the treatment of illness and injuries

<u>Robotics (BOT)</u> – a branch of engineering that involves the conception, design, manufacture, and operation of robots that can assist humans in a variety of ways

<u>Rover (ROV)</u> – a remotely operated vehicle that is an unmanned tool for exploring distant locations





<u>Geology (GEO)</u> – the science that deals with the history of the earth and its life, especially as recorded in rocks

<u>Biology (BIO)</u> – the branch of science that deals with living organisms and their vital processes

<u>Life Support (LS)</u> – the components of a spacecraft that address the core needs of human life, including air, water, and oxygen supply

Space Weather (SW or WX) – the variable conditions on the sun and in space that can influence the performance of the technology we use on Earth

# Comet Mission Terms

<u>Comet</u> – a combination of frozen dust, rock, and ice found within the solar system Nucleus: solid, frozen core of a comet Coma: visible part of a comet surrounding the nucleus, containing evaporated gases Tail: part of a comet pointed away from the sun; can be a gas tail or a dust tail

Long-Period Comet – a comet that takes over 200 years to orbit the sun

Docking – joining with a space station or another spacecraft while in space

<u>Trajectory</u> – the path followed by a projectile flying or another body moving through space

<u>Descent</u> – an action of moving downward, dropping, or falling Challenger Learning Center of NWI – Operation Comet





<u>Altitude</u> – the vertical elevation of an object above a surface (such as sea level or land) of a planet or natural satellite

Velocity – the speed of something in a given direction

<u>Satellite</u> – an artificial body placed in orbit around the Moon, Earth, or another planet in order to collect information for communication

Orbit – the path followed by an object around another object

<u>Crater</u> – a basin resulting from the collision of an object with a planetary surface

<u>Deploy</u> – to bring into action and make useable

<u>Atmosphere</u> – the envelope of gases surrounding the earth or another planet

Impact – the action of one object coming forcibly into contact with another

<u>Radiation</u> – energy that moves from one place to another as a wave or stream of high-energy particles





## Job Specific Terms

#### **Communication (COM)**

<u>Space debris / space junk</u> – artificial material that is orbiting the Earth but is no longer functional, such as a satellite or rocket stage

#### Navigation (NAV)

<u>Triangulation</u> – a scientific method of determining the location of an object <u>Throttle</u> – a device controlling the flow of fuel or power to an engine <u>Space debris</u> – artificial material that is orbiting the Earth but is no longer functional, such as an old satellite or rocket stage

#### Medical (MED)

<u>Nutrients</u> – substances that promote growth, provide energy, and maintain life <u>Treatment</u> – something that healthcare providers do for their patients to control a health problem, lessen its symptoms, or clear it up <u>Wellness</u> – the optimal state of health <u>Deficiency</u> – a lack or shortage of something

#### **Robotics (BOT)**

<u>Programming</u> – the act of providing instructions to a computer to perform a set of actions without direct human control

<u>Parent command</u> – in programming, the event that triggers the nested tasks <u>Nested task</u> – in programming, the event that occurs if the parent command is true <u>Calibration</u> – the act or process of configuring an instrument to provide a result for a sample





### Rover (ROV)

<u>Rappel</u> – descending to the ground from above, usually on a rope <u>Mission Critical parts</u> – instruments that must be installed in order for the ROV to function, such as Communication Transmitter and Receiver, Camera, and Navigation Computer

<u>Scientific Payload parts</u> – instruments that the ROV does not need to function, but may be necessary depending on the mission objectives

### Geology (GEO)

<u>Physical properties</u> – features of a substance that can be measured without changing the sample with chemicals

<u>Texture</u> – a physical property that can be easily be observed by looking closely; can be coarse-grained, fine-grained, or glassy

<u>Hardness</u> – a physical property that is measured using the Mohs scale and determined using a scratch test

<u>Magnetism</u> – a physical property that indicates whether or not a material is magnetic

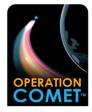
Mass – measure of how much matter is in an object

Volume – measure of how much space an object takes up

<u>Density</u> – the amount of mass in a particular space, calculated by dividing the mass of something by its volume

Displacement – the change in position of an object; method to measure volume





## **Biology (BIO)**

<u>Microgravity</u> – an environment in which there is little to no gravitational force applied to objects or humans

Bone density – a measure of how thick and compacted bones are

Regimen – a prescribed course of medical treatment

<u>Preventative</u> – a course of action designed to keep something negative (such as illness, harm, or accidents) from occurring

Microorganism – a microscopic organism, such as a bacterium, virus, or fungus

### Life Support (LS)

<u>Air pressure</u> – the force exerted by air on a surface, usually measured in millibars <u>Thermostat</u> – the controls used to regulate a heating system <u>Configuration</u> – the arrangement of different parts or components in a particular form or combination

form or combination

Prototype – a sample or model of a new product

 $\underline{pH}-a$  scale used to specify the acidity or basicity of a liquid

#### Space Weather (SW or WX)

<u>AU</u> – "astronomical unit;" a unit of length stating the mean distance between the center of the Earth and the center of the Sun

<u>Solar wind</u> – type of solar weather in which there is a spray of particles caused by the Sun's core temperature being incredibly hot

<u>Solar flare</u> – type of solar weather in which an explosion occurs on the Sun during a solar storm and is full of radioactive energy