EO C340.03 – DISCUSS UNMANNED SPACE EXPLORATION

1. **Performance.** Discuss Unmanned Space Exploration.

2. **Conditions**

   a. Given:

      (1) Supervision, and

      (2) Assistance as required.

   b. Denied: N/A.

   c. Environmental: Classroom or training area large enough to accommodate the entire group.

3. **Standard.** The cadet shall discuss unmanned space exploration, to include:

   a. Sputnik,

   b. Explorer,

   c. missions to planets within the solar system, and

   d. Voyager.

4. **Teaching Points**

TP	Description	Method	Time	Ref
TP1	Describe the history of earth satellites, to include: a. the development of launch capability, b. the Soviet Sputnik mission, and c. the United States' Explorer mission.	Interactive Lecture	15 min	C3-240
TP2	Describe the twin Voyager spacecraft, to include: a. the planetary voyage, b. the interstellar mission, and c. the golden record.	Interactive Lecture	20 min	C3-239
TP3	Describe unmanned space exploration, to include: a. missions to planets within the solar system, to include: 1. the Phoenix Mars mission, to include: (a) mission characteristics, and (b) Canada's lidar weather station; and 2. the Cassini-Huygens mission, to include: (a) mission summary, (b) Huygens' descent to Titan, and (c) Cassini orbiter flybys.	Interactive Lecture	20 min	C3-238 C3-241 C3-242

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5. **Time**

a.	Introduction/Conclusion:	5 min
b.	Interactive Lecture:	55 min
c.	Total:	60 min

6. **Substantiation.** An interactive lecture was chosen for this lesson to orient the cadets to unmanned space exploration, generate interest, and emphasize the teaching points.

7. **References**

a. C3-238 Canadian Space Agency. (2008). *Canadian Space Agency*. Retrieved February 9, 2008, from http://www.space.gc.ca/asc/eng/default.asp.

b. C3-239 NASA. (2008). Voyager: *The Interstellar Mission*. Retrieved February 9, 2008, from http://voyager.jpl.nasa.gov/index.html.

c. C3-240 NASA. (2007). *Sputnik: The Fiftieth Anniversary*. Retrieved February 9, 2008 from http://history.nasa.gov/sputnik/.

d. C3-241 European Space Agency. (2008). *Cassini-Huygens Homepage*. Retrieved February 9, 2008, from http://huygens.esa.int/science-e/www/area/index.cfm?fareaid=12.

e. C3-242 NASA. (2008). *NASA Cassini-Huygens Homepage*. Retrieved February 9, 2008, from http://saturn.jpl.nasa.gov/home/index.cfm.

f. C3-251 European Space Agency. (2008). *ESA: Multimedia Gallery Videos. Moons*. Retrieved April 5, 2008, from http://www.esa.int/esa-mmg/mmg.pl?mission=Cassini-Huygens&type=V.

8. **Training Aids.** Presentation aids (eg, whiteboard/flip chart/OHP/multimedia projector) appropriate for the classroom/training area.

9. **Learning Aids.** N/A.

10. **Test Details.** N/A.

11. **Remarks**

a. TP 2 must be updated each year to reflect current events.

b. Model kits of spacecraft may be purchased online as training aids.

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