EO M140.01 – LAUNCH A WATER ROCKET

1. **Performance**: Launch a Water Rocket

2. **Conditions**:

   a. Given:

      (1) Water rocket launch system,

      (2) Pump,

      (3) Two-litre plastic bottle,

      (4) Safety glasses / goggles,

      (5) Supervision,

      (6) Assistance as required.

   b. Denied: Nil.

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

3. **Standard**: The cadet shall:

   a. discuss Newton's Laws of Motion; and

   b. launch a water rocket.

4. **Teaching Points**:

TP	Description	Method	Time	Refs
TP1	Explain and discuss Newton's three Laws of Motion.	Interactive Lecture	15 min	C3-351
TP2	Have the cadets launch a water rocket.	In-Class Activity	65 min	C3-351

5. **Time**:

   a. Introduction / Conclusion: 10 min

   b. Interactive Lecture: 15 min

   c. In-Class Activity: 65 min

   d. Total: 90 min

6. **Substantiation**:

   a. An interactive lecture was chosen for TP 1 to orient the cadets to Newton's Laws of Motion.

   b. An in-class activity was chosen for TP 2 as a fun way to have the cadets launch a water rocket in a safe and controlled environment.

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7. **References**:

   a. C3-266 Science Toy Maker. (2008). Making (and using) an overhead water rocket launcher. Retrieved October 1, 2008, from http://www.sciencetoymaker.org/waterRocket/buildWaterRocketLauncher.htm

   b. C3-291 Retter, Y. (2008). *Water Rocket – Skewer Design*. Retrieved November 21, 2008, from http://www.geocities.com/yoramretter/SkewerDesign-v02.html

   c. C3-351 National Aeronautics and Space Administration. (2008). *Adventures in Rocket Science*. Retrieved October 27, 2011, from http://www.nasa.gov/pdf/265386main_Adventures_In_Rocket_Science.pdf

8. **Training Aids**:

   a. Water rocket launch system,

   b. Pump,

   c. Two-litre plastic bottle,

   d. Safety glasses / goggles, and

   e. Presentation aids (eg, whiteboard / flipchart / OHP / multimedia projector) appropriate for the training area.

9. **Learning Aids**: Safety glasses / goggles.

10. **Test Details**: Nil.

11. **Remarks**:

   a. Cadets qualified as Advanced Aerospace may serve as assistant instructors during this lesson.

   b. The water rockets may be launched indoors in an area easy to clean up (eg, gymnasium floor) or out of doors in favourable weather.

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