EO C340.06 – LAUNCH A WATER ROCKET

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

2. **Conditions**

   a. Given:

      (1) One-litre plastic bottle,

      (2) Construction paper,

      (3) Scissors,

      (4) Glue,

      (5) Putty or modeling clay,

      (6) Air pump with pressure gauge,

      (7) Launch pad,

      (8) Drinking straws,

      (9) Packing tape,

      (10) 3-mm string,

      (11) Safety glasses,

      (12) Supervision, and

      (13) Assistance as required.

   b. Denied: N/A.

   c. Environmental: Outdoor area 10 m by 20 m with controlled access.

3. **Standard.** The cadet, as a member of a group of no more than four, shall:

   a. construct a water rocket; and

   b. launch the water rocket.

4. **Teaching Points**

TP	Description	Method	Time	Ref
TP1	Supervise as the cadets construct a water rocket, that includes: a. fuselage, b. stabilizing fins, c. nose cone, d. centre of gravity trimming, and e. decorations.	Practical Activity	20 min	C3-016 (pp. 81–83)
TP2	Supervise the cadets launching the water rockets.	Practical Activity	50 min	C3-016 (pp. 77–79)

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TP	Description	Method	Time	Ref
TP3	Conduct an activity debriefing, to include: a. characteristics of the successful launches; and b. rocket behaviour under Newton's Laws.	Group Discussion	10 min	C3-016 (pp. 21–23)

5. **Time**

a.	Introduction/Conclusion:	10 min
b.	Practical Activity:	70 min
c.	Group Discussion:	10 min
d.	Total:	90 min

6. **Substantiation**

   a. A practical activity was chosen for TPs 1 and 2 as it is an interactive way to introduce cadets to water rockets. This activity contributes to the understanding of rocketry in a fun and challenging setting.

   b. A group discussion was chosen for TP 3 as it allows the cadets to interact with their peers and share their knowledge, experiences, opinions, and feelings about water rockets.

7. **Reference.** C3-016 (ISBN EG-2003-01-108-HQ) NASA. (2003). *Rockets: A Teacher's Guide With Activities in Science, Mathematics, and Technology*. Washington, DC: NASA.

8. **Training Aids.** Safety glasses.

9. **Learning Aids**

   a. Instructions for constructing a water rocket,

   b. One-litre plastic bottle,

   c. Construction paper,

   d. Scissors,

   e. Glue,

   f. Putty or modeling clay,

   g. Air pump with pressure gauge,

   h. Launch pad,

   i. Drinking straws,

   j. Packing tape,

   k. 3-mm string, and

   l. Safety glasses.

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

11. **Remarks**

    a. Prior to this lesson, instructors shall prepare a launching platform and guidance system.

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b. The launching pad should be saved for future training.

c. Each group shall be allowed a number of attempts to achieve a successful launch.

d. If a suitable location for this launching water rockets is not available at the squadron's training facility, that part of the lesson can be carried out as part of a field exercise.

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