

CADET ACADEMY MISSION 004

FIRST CONTACT AT THE TUNNEL



Episode 004 Mission Workbook
LRS Vanguard-6 / GMTO Exploration Program

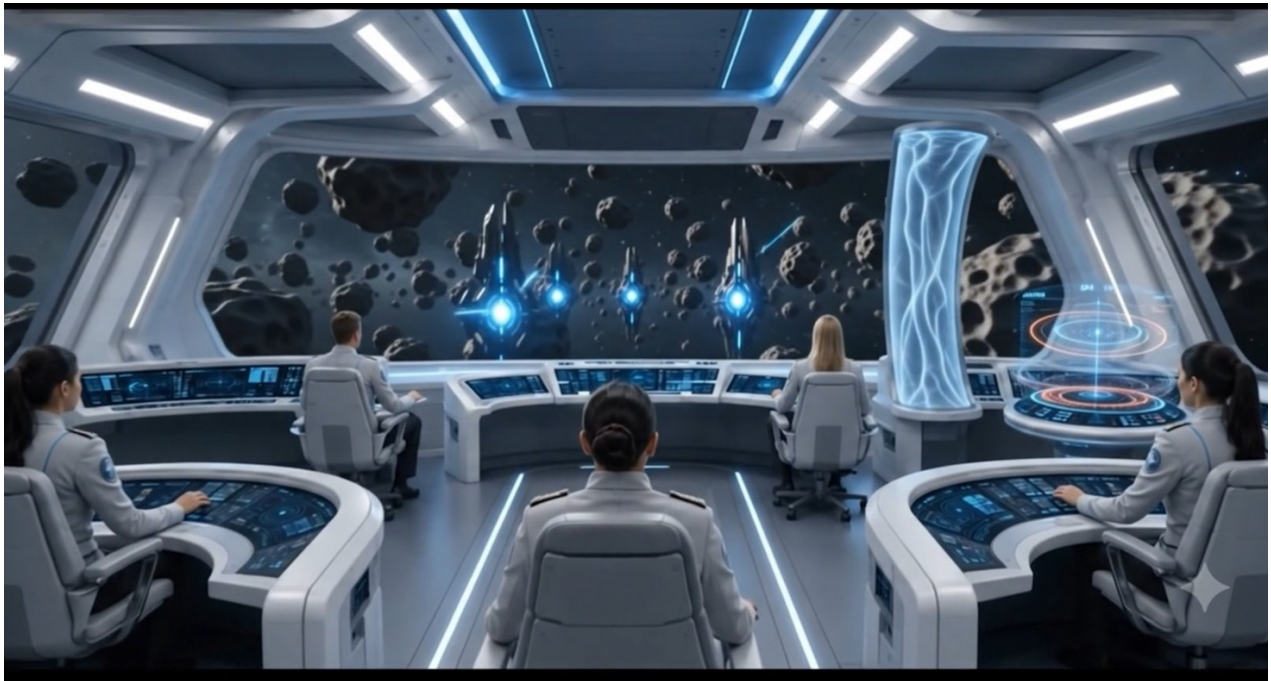
Cadet Name: _____ Stardate: _____

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1. Mission Briefing

Read the situation carefully before beginning your cadet assignments.



Mission: Vanguard-6 is moving through a dense asteroid field when four luminous structures appear ahead. A blue corridor begins forming between them. The crew keeps the ship steady while GMTO - the Galactic Multidimensional Topology Observer - analyzes the shapes, motion, and repeating patterns.

Your Cadet Objective: Decide what the crew can learn from observation before making assumptions. You will study patterns, navigation, communication, teamwork, and scientific caution.

Circle one: At first sight, the corridor looks most like: A) random debris B) an organized structure C) a planet D) a star

Why did you choose that answer?

2. Cadet Observation Log

Good explorers separate what they SEE from what they THINK it means.



Observation A - What can you directly see?

Observation B - What changes between the asteroids and the blue field?

Inference - What might the structure be doing?

3. Meet GMTO

GMTO helps the crew turn complex space phenomena into measurable information.



GMTO stands for: Galactic Multidimensional Topology Observer.

Topology is the study of shapes, connections, surfaces, and how structures relate to one another even when they bend or stretch. In this mission, GMTO compares the tunnel, the asteroid field, and the repeating geometric patterns.

Match each word to the best meaning:

- | | |
|-------------|--|
| 1. Pattern | A. A repeated arrangement |
| 2. Topology | B. A path used to travel |
| 3. Corridor | C. The study of connected shapes and spaces |
| 4. Signal | D. Information carried from one place to another |

Answers: 1 ____ 2 ____ 3 ____ 4 ____

4. Flight Control with Althea

Navigation requires calm decisions, not fast guesses.



Althea: "Approach is stable. Holding us on the centerline."

Imagine the corridor is 1,200 meters wide. Althea wants Vanguard-6 to remain exactly in the middle.

1. How far is the centerline from either edge? _____ meters
2. If the ship drifts 75 meters to starboard, how far must Althea correct to return to center?
_____ meters

3. Why is a small, controlled correction safer than a sudden large turn in an asteroid field?

5. Is It Random?

Scientists look for repetition, order, and predictable relationships.



GMTO detects repeating geometric patterns. In our story, the crew considers using number sequences as a simple way to show that an intelligent observer is responding.

Prime numbers have exactly two positive factors: 1 and themselves. Example: 2, 3, 5, 7, 11.

Continue the prime-number sequence: 2, 3, 5, 7, 11, _____, _____, _____

Fibonacci sequence: each new number is made by adding the two before it. 1, 1, 2, 3, 5, 8, _____, _____, _____

Cadet Question: Why might mathematics be useful when two civilizations do not share the same spoken language?

6. First-Contact Dialogue

Read the exchange and answer the questions below.



Captain: “INA, are we looking at turbulence or intent?”

INA: “Intent, Captain. The pattern repeats too cleanly.”

Althea: “Then they know we are here.”

1. What evidence makes INA think the event is intentional?

2. Does Althea sound frightened, excited, or focused? What words or actions support your answer?

7. The Explorer's Rule

First contact requires curiosity, caution, and respect.



The crew does **not** fire weapons, rush forward, or assume the unknown intelligence is hostile. They observe, verify, and communicate carefully.

Check the actions that show responsible exploration:

- ☐ Collect more information before acting.
- ☐ Fire first because the structure is unfamiliar.
- ☐ Keep the ship stable and maintain a safe route.
- ☐ Use GMT0 data to test whether patterns repeat.
- ☐ Respect the possibility that the signal comes from another intelligence.

Cadet Rule: Write one sentence describing how explorers should behave when they meet something they do not understand.

8. Design a Reply

Create a simple message that does not depend on English words.

Imagine GMTO asks you to design the first reply to the unknown intelligence. Your reply can use numbers, shapes, spacing, rhythm, or repeated light pulses.

DRAW YOUR CONTACT MESSAGE HERE

Explain your message: What pattern did you use, and why do you think another intelligence might recognize it?

9. Mission Check

Complete the quiz before receiving your Cadet Mission 004 clearance.

1. Who flies Vanguard-6 during this mission?

A) INA B) Althea C) GMT0 D) Rex

2. What does GMT0 help the crew analyze?

A) Shapes and connected structures B) Food supplies C) Weather on Earth D) Music

3. Why does INA think the event shows intent?

A) It is loud B) It repeats with structure C) It is blue D) It contains asteroids

4. What is the safest first-contact behavior?

A) Attack B) Ignore data C) Observe, verify, communicate carefully D) Accelerate blindly

5. What mathematical idea could help communicate without a shared spoken language?

A) Repeating number patterns B) Random noise C) Color names only D) None

Bonus: In one sentence, explain what makes this episode a “first contact” story.

10. Cadet Mission Debrief

Summarize what you learned from Episode 004.

My strongest observation was:

One thing GMTO taught me about patterns or topology:

One reason careful communication matters during first contact:

If I were on the bridge, my next recommendation would be:

11. Cadet Mission 004 Clearance

Complete the mission and record your results.



MISSION STATUS: FIRST CONTACT OBSERVATION COMPLETE

Cadet Name: _____

Instructor / Parent: _____

Date Completed: _____

Quick Answer Guide

Vocabulary: 1-A, 2-C, 3-B, 4-D. Navigation: 600 meters; 75 meters. Prime sequence: 13, 17, 19. Fibonacci: 13, 21, 34. Quiz: 1-B, 2-A, 3-B, 4-C, 5-A. Open-response answers may vary when supported by clear reasoning.

Cadet Academy Mission 004 completed - ready for the next Vanguard-6 assignment.