

AIR TRAFFIC CONTROL CHALLENGE: MANAGING A BUSY AIRPORT

DURATION

60-75 minutes

AGE GROUP

12-14 years old

THEME

Aviation Logistics
and Problem-Solving

OBJECTIVE

Students will work in teams to manage a simulated busy airport, dealing with various challenges and optimising airport operations. This activity enhances problem-solving, teamwork, and critical thinking skills while introducing more complex aviation concepts.



MATERIALS

- Large poster board or whiteboard to represent the airport
- Coloured pens or magnets to represent different planes
- Dice for randomizing events
- Stopwatch or timer
- Calculators (optional)
- Laptop/tablet for each team (if available) for flight scheduling

ACTIVITY BREAKDOWN

INTRODUCTION (10 MINUTES)

- Explain air traffic control basics and airport operations.
- Introduce key aviation terms: runways, taxiways, gates, holding patterns.

TEAM FORMATION AND ROLE ASSIGNMENT

(5 MINUTES)

- Form teams of 4-5 students.
- Assign roles: Air Traffic Controller, Gate Manager, Weather Analyst, Emergency Response Coordinator.

AIRPORT SETUP

(10 MINUTES)

- Teams create their airport layout on the poster board/whiteboard.
- Include 2 runways, multiple gates, and designate airspace zones.

THE CHALLENGE

(35-45 MINUTES)

- Teams manage their airport for a simulated 12-hour period (30-40 real minutes).
- Every 5 minutes, roll dice to introduce new challenges: 1-2: Weather event (fog, storm) 3-4: Technical issue (runway repair, system outage) 5-6: Special flight (VIP arrival, emergency landing)

Teams must:

- Schedule and manage arrivals and departures
- Assign gates efficiently
- Handle emergencies and unexpected events
- Maintain safety protocols





SCORING SYSTEM

- Points for each safely landed / departed plane
- Deductions for delays, safety violations, or mismanaged emergencies
- Bonus points for efficient gate usage and quick problem resolution

DEBRIEFING AND ANALYSIS

(10 MINUTES)

- Teams present their final airport status and score.
- Discuss strategies used and challenges faced.
- Analyse how real airports might handle similar situations.



EXTENSION IDEAS

- Introduce budget constraints for airport operations
- Add international flight complications (customs, different plane sizes)
- Simulate a full 24-hour airport cycle with shift changes



LEARNING OUTCOMES

- Enhanced problem-solving and decision-making under pressure
- Improved understanding of complex systems and interdependencies
- Developed skills in resource management and prioritisation
- Increased awareness of aviation industry challenges and solutions



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