

## 2.1 Lesson plan 3 Outline

Lesson plan 3 topic	The Magnetic Compass
Lesson plan 3 objectives	Students will be able to explain the basic use of a compass in aerial navigation.
Anticipatory set or lesson opening (to activate students' prior learning or draw student interest or involvement)	<p>In your Journal, try to answer these two questions as best you can:</p> <ul style="list-style-type: none"> <li>• Where does a compass needle point to?</li> <li>• What make a compass needle point in a particular direction?</li> <li>• How is this different from lines of longitude?</li> </ul>
Direct Instruction	<p>In the previous lesson, we learned about “True North” and “True South”. In today’s lesson, we will explore “Magnetic North” and “Magnetic South” and their relationship to charting a flight plan course.</p> <p>Students will be issued a magnetic compass to use with this outdoor activity. We will go to the nearby soccer fields and set up four cones that approximately align with a line of longitude. Students will stand between any two cones and align their compasses perpendicular to the cones. Students will then align the north indication on the compass to the compass needle and approximate the number of degrees of variation.</p> <p>The lesson will be introduced with a PowerPoint presentation. The teacher will emphasize that True directions are geographical, while Magnetic directions are determined by the earth’s magnetic source. True coordinates and directions are easily mapped, but do not help in flight navigation. Therefore, we must use a combination of true and magnetic courses in aviation.</p>
Guided Practice	The teacher will circulate among the class to give additional guidance and demonstrations.
Independent Practice/Differentiated Activities	Upon returning to class, students will work in new groups of three using discovery and collaboration.
Reflection on employability skills	This lesson translates into real word careers in GPS navigation systems, marine and aviation navigation systems – e.g. Air Traffic Controllers
Lesson Closure	In your journal, explain why we need to have knowledge of BOTH True and Magnetic directions.
Summative/end of lesson assessment	Oral and participatory review before tomorrow’s lesson.
References / Resources / Teacher Preparation	Magnetic compasses, Google Earth handout.

(Note: Please attach relevant documents, quiz and answer key.)

1. What are the four “Cardinal Headings?”
2. What is the approximate location of Magnetic North?
3. Stand and face north on the Longitude Line in the soccer field.
4. Align North with your position within any two cones. Stay at least 6 feet away from any other students.
5. Rotate the compass so that north aligns with the compass needle.
6. What is the magnetic deviation between True North and Magnetic North on your compass?

