Core Content

Cluster Title: Understand congruence in terms of rigid motions.

Standard: I.5.G.H.1 Understand and use logical reasoning to make and evaluate arguments. (e.g. conditional statements, converse, inverse, contrapositive, counter-example, Law of Syllogism, and if-and-only-if statements)

Concepts and Skills to Master

- Write conditional statements.
- Write inverse converse, inverse, and contrapositive statements and analyze the truth value of each.
- Provide counter-examples for conjectures.
- Use the Law of Syllogism to create an argument.
- Understand that if and only if statements imply that the conditional statement and the converse are both true.

Supports for Teachers

Critical Background Knowledge

• Basic knowledge of inductive and deductive reasoning.

Academic Vocabulary

conditional statements, if-then, converse, inverse, contrapositive, counter-example, Law of Syllogism, if and only if, truth values, hypothesis, conclusion, negation.

Suggested Instructional Strategies	Resources
 Find examples of logic statements in context (e.g. media) and 	
evaluate the truth-value based on reasoning.	
 Determine if statements are never true, sometimes true, or always 	
true.	

Sample Formative Assessment Tasks

Skill-based Task

Find an example of an if-then statement in the media. Write the converse. Is the converse true? How do you know?

Problem Task

Create a marketing campaign for a favorite product using logical reasoning statements.

Four cards lie on a table; each card is either red or blue on one side and has a triangle or circle on the other side. The following statement describes the way the cards are made:

If a card is blue on one side, it has a circle on the other side.

Which cards have to be turned over to find out if this statement is true?