Instructional Flow – Unit 2 Reasoning in Geometry

2.1 An Introduction to Proofs

- proof as a method of verification
- verification of non-geometric conjectures using explanations or diagrams

2.2 An Introduction to Logic

- conditionals and their converses
- construction of logical arguments using Euler diagrams
- notation of logical reasoning (e.g., $p \rightarrow q$)

2.3 Definitions

- definitions as biconditionals
- characteristics of a good geometric definition

2.4 Building a System of Geometry Knowledge

- algebraic properties of equality
- Equivalence properties of equality and congruence

12.1 Truth and Validity of Logical Arguments

- valid and invalid arguments
- vocabulary and symbolic forms of modus ponens, modus tollens, affirming the consequent, and denying the antecedent.

12.2 And, Or, and Not, in Logic

• *truth values of conjunctions, disjunctions, and negations*

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12.3 A Closer Look at If-Then Statements

- the converse, inverse, and contrapositive of conditional statements in logical arguments
- logically equivalent statements and truth tables

2.5 **Conjectures That Lead to Theorems**

- applications of inductive and deductive reasoning
- investigation of vertical angles

IG Instructional Guide Lesson

• valid arguments about geometric concepts using logical chains

12.4 Indirect Proof

• indirect reasoning or proof by contradiction