Name:	·	Date:
How c	an the conjecture: "All teenagers like music" be supported	by inductive reasoning?
How c	an it be disproved?	
used t	ive reasoning cannot be used to prove a conjecture true o draw a specific conclusion through logical reasoning start n to be valid.	
Examp	ole Make some conclusions (deductions) given the following	g information:
a.	Ms. Langille likes kittens. Molly is a kitten, therefore,	.
b.	Paulette lives in Medicine Hat. Medicine Hat is in Alberta, therefore,	
c.	Every animal has a heart. All dogs are animals,	
d.	If a triangle has two equal sides, then it has two equal ang	les. ΔABC has two equal sides.
Example All whole numbers are integers. 7 is a whole number, therefore:		
	This is an example of the pro	operty.
Example What is wrong with this example: "All quarterbacks eat steak. Doug is the school quarterback. Thus, Doug eats steak."		
	Proof	Theorem

Example Jon discovered a pattern when adding consecutive numbers:

$$1+2+3+4+5=15$$

 $(-15)+(-14)+(-13)+(-12)+(-11)=-65$

Pattern: The sum of five consecutive integers is 5 times the median.

- a. What does this mean? Add 5 consecutive integers of your own and see if you find the same pattern.
- b. Prove the conjecture.

Note: In this lesson we will be considering statements involving odd numbers or even numbers.

- Every _____ number is of the form _____.
- Every _____ number is of the form _____.

Example When two odd numbers are added, their sums are always even.

- a) Use inductive reasoning (three cases) to suggest the statement is true.
- b) Use deductive reasoning to prove the statement above.

Example Prove the conjecture from an earlier lesson

"The difference between consecutive perfect squares is always an odd number"

Proof using Venn diagrams

Exxample Given: All gorillas are primates. All primates are mammals.

Consider: Grodd is a gorilla. What else can be deduced about Grodd?