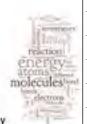
What do you think chemists do?		
(or in more general, scientists)		
	135	
	hyon	
	energy	
	molecules	
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 and the second s		
		٦
Scientists ask questions and make		
claims (based on data and evidence)		
Annual Managaran Property Description		
	(Invest	
	POPULATION	
	molecules	
	clectrons	
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What is a scientific question?

 Can be answered by making measurements or observations



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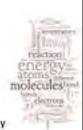
Which is a scientific question?

- What temperature will my coffee be if I add milk to it?
- · Do angels have wings?
- Can my dog understand what I say?



What is a claim?

 A statement, based on evidence and data about some phenomenon.



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What is data?

- Measurements
- Observations



What is evidence?

- · Synthesis of data
- What is the evidence that atoms exist?
- What is the evidence that all life is descended from a single cell?
- What is the evidence that there is an attractive force between large objects?

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What are some examples of scientific

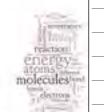
- · What could be a claim?
- What could be some data?
- What could be some evidence?



So what do scientists do with all of this information (data, evidence, etc.)? Chemistry, life, the universe & everything - Cooper & Klymkowsky

What is a Scientific Theory?

- · Based on observations/experiments
- · Makes testable predictions
- May change over time as new evidence becomes available
- Is falsifiable (ie can be proven false by experiments and data)
- · Restricted to natural phenomena
- Explains how and/or why



What is a Law?

 Summarizes past observations and predicts future ones



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Facts, Laws, Hypotheses and Theories

Which is a fact (law, hypothesis, theory)

- A. Special relativity (time and space are not absolute but are relative to each other)
- B. The force of attraction between masses is proportional to the product of the masses, and inversely proportional to the square of the distance between them
- C. An atom of hydrogen has one proton
- D. If we add reagent X to a reaction it will go faster?

teletion energy atoms by molecules molecules

Putting Everything Together

- · Claim:
 - Large objects attract each other
- Evidence:
 - Things fall to the ground, planets orbit the sun
- Data:
 - measurements about the force of attraction
- Law of Gravity:
 - Force of attraction = Constant (M, M,/r2)
- · Theory of Gravity:
 - General theory of relativity (ask the physicists)

