Viewing Guide: “And That’s Why Carbon Is A Tramp”
http://www.youtube.com/watch?v=QnQe0xW_JY4.

1:30 -

1. What is the level of complexity just below biology?
2. What are organic compounds?
3. What is meant by carbon being small? How does this affect how carbon can bond and the shapes it can take?
4. How does carbon’s reactivity compare to sodium’s or fluorine’s?
5. What is meant by carbon ‘being a tramp’?
6. Which elements does carbon bond with most commonly?
7. Why is carbon the foundational element of living things?
8. How many electrons does carbon have? How many electrons does carbon have in its outermost (valence) shell? How many more electrons does carbon need to fill its outermost covalent shell?
9. What kind of bonds does carbon form?
10. In the example given of methane, what does carbon bond with?
11. Who was Lewis? Why is he being discussed during this video?
12. What is the octet rule? How can that be used to predict how many bonds an atom will form?
13. What is the difference between polar and nonpolar covalent bonds?
14. How do these compare to ionic bonds?

Viewing Guide: Biological Molecules – You Are What You Eat
http://www.youtube.com/watch?v=H8WJ2KENlK0&feature=plcp

1. What are biological molecules?
2. What are these molecules used for?
3. What are the three that will be discussed?
4. Who was William Prout? Why did he study urine?
5. How did he classify foodstuffs?
6. What are carbohydrates? What are they made of?
7. What is glucose? How is glucose the foundation of life on earth?
8. What are monosaccharides?
9. How is fructose similar to glucose? How is fructose different from glucose?
10. What are disaccharides? What is sucrose?
11. What are polysaccharides? What are they used for?
12. What is cellulose? Why can't humans eat grass?
13. What is starch (amylose)? How does it compare to cellulose?
14. How do humans store carbohydrate energy? What is it used for?
15. How do humans store energy, generally?
16. What are lipids? How are lipids grouped together? Why can't lipids dissolve in water?
17. What makes up fats? What is a triglyceride?

18. What is the difference between saturated and unsaturated fats?

19. What are unsaturated fats liquids at room temperature and saturated fats solids at room temperature?

20. What are trans fats? What are omega-3 unsaturated fats? Why are they essential?

21. What is a phospholipid? What do they make up? How do phospholipids behave in water? (Please note the correction in the video!)

22. What are steroids? What is cholesterol? What are lipid hormones?

23. What are proteins? What some of the classes of proteins mentioned?

24. What makes up proteins? What makes up amino acids?

25. What is the R group or side chain? How does the R group affect the function of the amino acid?

26. What are polypeptides? What shapes do they form?

27. What is meant by essential amino acids?