Technology, Systems Worksheet

1. What are the two types of NEEDS: ____________________ and ____________________

2. How are they different? ____________________

3. Identify the 3 “BASIC NEEDS” and 3 “DERIVED NEEDS” – Answer in the blanks.
   (A) Food ____________________
   (B) Homeowner’s insurance ____________________
   (C) Water ____________________
   (D) Gasoline ____________________
   (E) A shirt ____________________
   (F) A telephone ____________________

4. Match the item to the technological age (Agricultural, Industrial, Space, Information, Biotech)
   A. Simple ox cart: ____________________
   B. Global Positioning Systems: ____________________
   C. Simple iron farm tools: ____________________
   D. Steam engine: ____________________
   E. Telegraph: ____________________
   F. 3.0 Gigahertz Processors: ____________________
   G. First satellites: ____________________
   H. Cloning: ____________________
   I. Smart phones: ____________________
   J. First farm tractors: ____________________
   K. Human Genome mapped: ____________________

5. Match item to type of technology (“Physical,” “Biological,” “Information & Communication”)
   A. Radar ____________________
   B. Plant food ____________________
   C. Automobiles ____________________
   D. Pagers ____________________
   E. Vaccines ____________________
   F. Gasoline ____________________
   G. CD’s ____________________
   H. Your dwelling ____________________

6. When technologies help one another develop, we say these technologies are: ____________________
7. Name two technologies from those listed in the reading that automobiles were dependent upon: _________________________ and _________________________

8. Name the one thing that technology requires to flourish and develop: _________________________

9. What were the three most important technologies of the Industrial Revolution: _________________________, _________________________, and _________________________

10. What human endeavor (sadly) drives technology in many ways: _________________________

11. What is it called when a technology advances rapidly: _________________________

12. Which of these technologies listed (in **bold**) were used 75 years ago and which are used today?

<table>
<thead>
<tr>
<th></th>
<th>75 years ago</th>
<th>Today</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Personal Transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B. Flight transportation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C. Communications</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D. Manufacturing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Robotics</th>
<th>Assembly line developed</th>
<th>Street Cars</th>
<th>DC-3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio</td>
<td>Boeing 757</td>
<td>Self-Parking</td>
<td>Smart Phones</td>
</tr>
</tbody>
</table>

13. What does a system allow us to do? _________________________

14. What are vital parts of system called? _________________________

15. What are the two ways we store food in the kitchen? _________________________

16. To our superintendent, this school is only a: _________________________

17. What part of a system is the “do” part? _________________________

18. What part of the system is “what we get?” _________________________

19. What is the part of the system that “controls” the system? _________________________

20. How does feedback allow us to close the loop? _________________________

21. Name four parameters that a system can measure to control itself: _________________________, _________________________, _________________________, _________________________
If I say “FEEDBACK,” you say: ________________! If I say “MEASURE,” you say: ________________! If I say “CONTROL,” you say: ________________! If I say “AUTOMATIC,” you say ________________!

And if I say “AUTOMATIC,” you say ________________!

23. Match item to type of input (Materials, Machinery, Manpower, Tools/Equipment, Energy, Time, Capital)

<table>
<thead>
<tr>
<th>A. Stoves, AC units</th>
<th>E. Money, stocks, land</th>
</tr>
</thead>
<tbody>
<tr>
<td>B. Cooking utensils</td>
<td>F. Electricity</td>
</tr>
<tr>
<td>C. Paint, groceries</td>
<td>G. Employees</td>
</tr>
<tr>
<td>D. Paint brush, roller</td>
<td>H. Work schedule</td>
</tr>
</tbody>
</table>

24. Consider a closed-loop system or process around your home or neighborhood. Define and show how it uses feedback (closes the loop) by completing this section.

“_______________ is a system for __________________________. It has at least this one sub-system: ________________.”

“It measures __________________________ to control (input) __________________________.”

25. Every system can be: ____________________________

26. You will one day ____________________________ the system and be the system ____________________________.

27. Most systems can be broken down into: ____________________________.

28. All systems have ____________________________ parts.

29. No system operates in a ____________________________.

30. What determines if technology is “good” or “bad”? ____________________________

31. What are the four things to think about when deciding if a technology should be developed?

__________________________ ____________________________ ____________________________ ____________________________

32. Name a technology besides nuclear energy or biotechnology that is both “good” and “bad” and explain your answer. ____________________________ Because ____________________________

33. All technologies are: ____________________________

34. Name 2 areas of technology that you could go into to help the “developing world”

__________________________ ____________________________