Science 10-Biology
Activity 15
The Development of the Human Embryo

NOTE: This worksheet is based on material from pages 379-380 in Science Probe and “Internet Handout for Activity 15” (from Teacher).

1. When a zygote starts to divide, it is called an ______________________________.

2. The embryo becomes implanted in _______________________________________

3. A large structure called the _____________________________________ develops between the embryo and the mother.

4. In the placenta, blood vessels of the mother and the embryo come close but do not ___________________________________.

5. How does oxygen and food reach the cells of the embryo? __________________
_______________________________________________________________________

6. How are the wastes produced by the embryo dealt with? ____________________
_______________________________________________________________________

7. Can harmful substances pass through the placenta? _________________________

8. Why do you think mutagens are particularly dangerous during the early stages of embryo development? ________________________________

______________________________
Name ________________________________

______________________________
Due Date ________________________________

Show Me  □  Hand In  □

Correct and Hand In Again By 10
9. The placenta secretes a hormone which ensures the continuing production of the hormone ______________________________________, which maintains the lining of the uterus.

10. What happens to the menstrual cycle during pregnancy? _____________________

11. About 8 to 10 weeks after fertilization, the embryo is now called a _____________

12. The time from fertilization to birth for a human is about _________ months.

13. About how long after fertilization, does the heart start beating? _______________
   How large is the embryo at this time? ______________________________________

14. About how long after fertilization, can the embryo be recognized as being human? _______________________________________________________________

15. The ___________________________________ cord connects the fetus to the placenta, and thus the supply of food and oxygen.

16. List three things that hormones from the mother and the baby do during birth:
   _____________________________________________________________________
   _____________________________________________________________________
   _____________________________________________________________________

17. What is the cervix? _____________________________________________________

18. What is the purpose of contractions of the uterus? _______________________

AND USE THE INFORMATION TO HELP YOU ANSWER THE FOLLOWING QUESTIONS:

19. Drugs taken by a pregnant woman reach the fetus primarily by crossing the ____________.
   the same route taken by _______________ and nutrients, which are needed for the fetus's growth and development.
20. Give three ways that drugs which a pregnant woman takes can directly affect the fetus.
___________________________________________________________________
___________________________________________________________________
___________________________________________________________________

21. Drugs can affect the placenta by _____________________________ the blood vessels
and reducing the supply of ___________________ and _____________________ to
the fetus. This can result in a baby that is ______ weight and ______ developed.

22. Drugs can cause the muscles of the uterus to __________________ forcefully, indirectly
injuring the fetus by reducing its _____________________ supply or triggering
__________________________ labor and delivery

23. Clearly label the following on the diagram: The Placenta, the Umbilical cord, the Fetus’s blood
Vessels, the Mother’s blood vessels, the Placental membrane, a villis (singular for “villi”)

Activity 15—Worksheet on Human Reproduction
24. Some of the fetus's blood vessels are contained in tiny hairlike projections (__________) of the placenta that extend into the wall of the _________________. The mother's blood passes through the space surrounding the ___________ (intervillous space). Only a thin _________ (placental ________________ ) separates the mother's blood in the intervillus space from the fetus's blood in the villi. Drugs in the mother's blood can ____________________this membrane into blood vessels in the villi and pass through the umbilical cord to the _________________.

25. The fetus is particularly vulnerable to birth defects between the __________and the __________ week after fertilization, when its _______________ are developing. Drugs reaching the fetus during this stage may cause a ________________________, an obvious _____________ ______________, or a permanent but ____________ defect that is noticed later in life.

26. Drugs taken after organ development is complete are __________________ to cause obvious birth defects, but they may alter the ____________ and __________________ of normally formed organs and tissues.

Now Click “Social Drugs” in the left column.

27. Birth defects of the ___________. ________________, and _______________ are more common among babies of smokers than among those of nonsmokers.

28. Carbon monoxide may reduce the ________________ supply to the body's tissue.

Nicotine stimulates the release of hormones that ________________ the vessels supplying blood to the uterus and placenta, so that less ________________ and fewer nutrients reach the fetus.

29. Drinking alcohol during pregnancy is the ________________ known cause of birth defects. Fetal Alcohol Syndrome (FAS) includes inadequate growth before or after birth, ________________ defects, a _____________ head (probably caused by inadequate
growth of the _________________), _________________ retardation, and abnormal _________________ development. Less commonly, the position and function of the joints are abnormal and heart _________________ are present. Babies or developing children of women who drank alcohol during pregnancy may have severe ______________ problems, such as _________________ behavior and attention deficit disorder.

30. Cocaine _________________ crosses the placenta and affects the fetus. Newborns may have _________________ symptoms. Their behavior is also affected. Newborns interact less with other people. Babies of cocaine users may be _________________ active, _________________ uncontrollably, and have difficulty _________________.

31. Opioids, such as _________________, _________________, and _________________ readily cross the _________________ consequently, the fetus may become _________________ to them and may have _________________ symptoms 6 hours to 8 days after birth.

32. Use of amphetamines during pregnancy may result in _________________, especially of the _________________.

33. The main ingredient of _________________, tetrahydrocannabinol, _________________ cross the placenta and thus may _________________ the fetus. If marijuana is used heavily during pregnancy, newborns may have _________________ problems.