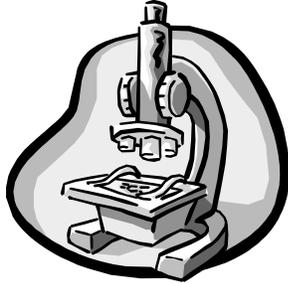


# Science 10-Biology

## Activity 15

### The Development of the Human Embryo



10

Name \_\_\_\_\_

Due Date \_\_\_\_\_

Show Me  Hand In

*Correct and Hand In Again By*

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

- When a zygote starts to divide, it is called an \_\_\_\_\_.
- The embryo becomes implanted in \_\_\_\_\_.
- A large structure called the \_\_\_\_\_ develops between the embryo and the mother.
- In the placenta, blood vessels of the mother and the embryo come close but do not \_\_\_\_\_.
- How does oxygen and food reach the cells of the embryo? \_\_\_\_\_  
\_\_\_\_\_
- How are the wastes produced by the embryo dealt with? \_\_\_\_\_  
\_\_\_\_\_
- Can harmful substances pass through the placenta? \_\_\_\_\_
- Why do you think *mutagens* are particularly dangerous during the **early** stages of embryo development? \_\_\_\_\_  
\_\_\_\_\_

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? \_\_\_\_\_
- \_\_\_\_\_

NOW GO TO THE INTERNET SITE: <http://www.merck.com/mmhe/sec22/ch259/ch259a.html> AND USE THE INFORMATION TO HELP YOU ANSWER THE FOLLOWING QUESTONS:

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.

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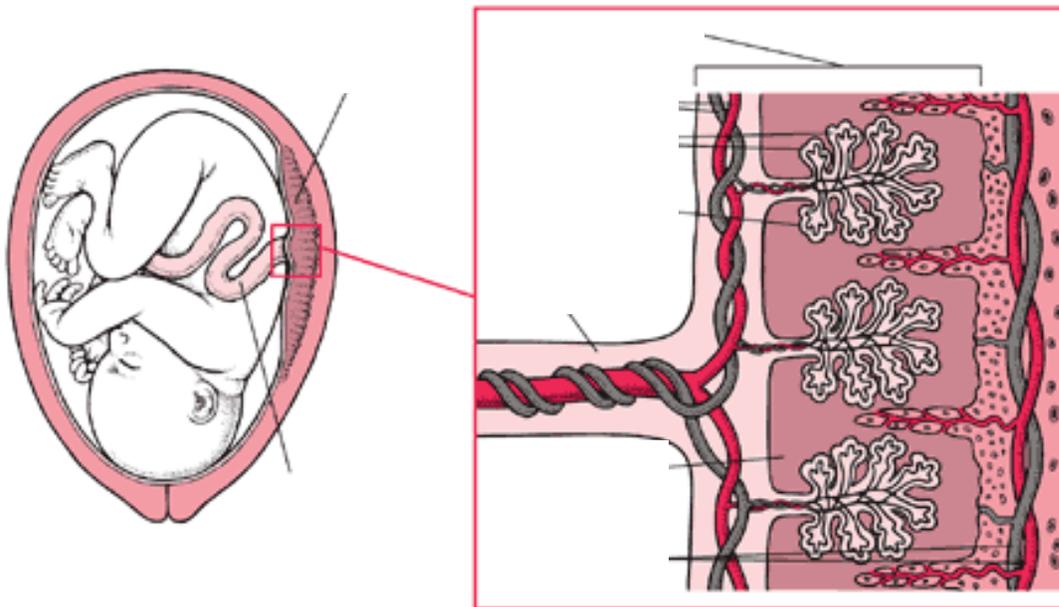


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21. Drugs can affect the placenta by \_\_\_\_\_ the blood vessels and reducing the supply of \_\_\_\_\_ and \_\_\_\_\_ to the fetus. This can result in a baby that is \_\_\_\_\_ weight and \_\_\_\_\_ developed.

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”)

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 intervillous 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.

