Unit 1: Appendix C

Play-Doh Models
Zygote through Blastocyst

Play-Doh models will help the student understand the early stages of embryonic development and see where stem cells develop. Discuss modeling as a mode of conceptualizing the division of cells from a mound of clay. The student can use the mound of clay modeled into first, a zygote, then pick up and reform the clay showing a two-cell stage, reform into a four-cell stage, then the eight-cell stage. Here, it is called the morula, the source of totipotent stem cells. The student can reform the clay up to the point of the sixteen-cell morula and optionally the sixty four-cell stage morula, then to blastocyst formation. Stem cells inside the blastocyst can be modeled from a contrasting color of clay and placed in the blastocyst as the inner cell mass. The teacher can discuss how the stem cells of the morula are totipotent and in the blastocyst, pluripotent. To substitute or go along with this activity, you can have students draw embryonic development on page 2. On page 3, you will find graphics of the models that could be demonstrated by the teacher as the students' models are constructed.

The Play-Doh modeling exercise was developed by the Northwest Association for Biomedical Research (NWABR). Additional information for this activity and other units are available here.

This activity was modified from materials made possible by Grants R25RR16284 and R25RR025131 from the National Center for Research Resources (NCRR), a component of the National Institutes of Health (NIH). The contents are solely the responsibility of the authors and do not necessarily represent the official views of NCRR and NIH.

Draw Embryonic Development

Name: _____

Date:_____ Per:_____

Day 1: Fertilized egg	Day 2: 2-cell embryo	Day 2.5: 4-cell embryo
Day 3: 8-cell morula	Day 4: 16-64 cell morula	Day 5: Blastocyst

Models

Day 1: Fertilized egg 	Day 2: 2-cell embryo	Day 2.5: 4-cell embryo
Day 3: 8-cell morula 	Day 4: 16-64 cell morula	Day 5: Blastocyst