IN THE BEGINING

Performance Standards 12A/11A/13B.I

Students will apply the process of scientific inquiry to explain the effects of prenatal development as a result of maternal ingestion of various drugs accordingly:

- *Knowledge:* understand the basic foundations associated with prenatal development.
- *Application:* research the impact of maternal consumption of various chemicals/drugs on prenatal development and general public understanding of this impact.
- *Communication*: report the findings on impact of prenatal development and generalized public opinions about prenatal development.

Procedures

1. ***In order to know and apply concepts that explain how living things function, adapt and change (12A); the concepts, principles and processes of scientific inquiry (11A); and concepts that describe the interaction between science, technology and society (13B),*** students should experience sufficient learning opportunities to develop the following:
   - Generate questions about prenatal development and the influence of maternal nutrition and consumption of various drugs.
   - Reference pertinent research resources about healthy prenatal development and the effect of maternal ingestion of various drugs.
   - Design an investigation survey instrument to question public understanding of impact of healthy and unhealthy fetal development.
   - Select appropriate questions, methods and communication components for investigation.
   - Conduct investigation, using applicable technologies, formats and recording methods.
   - Interpret and represent analysis of survey results.
   - Evaluate findings to explore explanations of understanding and reliability of the survey.
   - Report the findings of the survey for group discussion.
   - Generate further questions or issues for consideration.

   Note to teacher: This activity relates to knowledge associated with Standard 12A, while addressing the Performance Descriptors for Stage I within Standard 11A. It integrates information as suggested in Standard 13B. Family and Consumer Sciences (FCS) students will enhance their knowledge of conducting an issue investigation that will be beneficial in their child development careers. This assessment addresses the National FCS Standards #4.0 (Early Childhood, Education and Services) and #15.0 (Parenting). Students may use their findings in the following Family, Career and Community Leaders of America (FCCLA) STAR events: Community Service, Families First, Leaders at Work, Student Body, Illustrated Talk and Focus on Children.
2. Have students review and discuss the assessment task and how the rubric will be used to evaluate their work.
3. Introduce students to foundations of healthy fetal development, with a special focus on brain development. Introduce the elements of societal acceptance and resistance to understanding and applying warnings about behaviors that affect prenatal development adversely. Develop questions for use in a survey for peers and general public respondents to address understanding of fetal development and effect of specific chemicals such as over-the-counter analgesics, cold remedies, dietary supplements, alcohol, marijuana and nicotine. Make class decisions about number, composition, specificity and methodology of questions. Students should collect, compile and analyze survey instrument data to explore how the public understands fetal development. Simultaneously, students will be asked to collect research about the effect of substances at various stages of pregnancy to be questioned in the survey. Present research to classroom audience for consideration of correlation of scientific facts and informed opinions.
4. Evaluate each student's work using the Science Rubric as follows, and add the scores to determine the performance level:
   - *Knowledge:* The basic concepts, developmental stages and impact of maternal ingestion of selected chemicals are clearly explained completely and accurately.
   - *Application:* Survey instrument development, data collection and interpretation provide clear and accurate methodology and analysis.
   - *Communication*: Findings of research and survey interpretations are correlated accurately and completely.

Examples of Student Work

- Meets
- Exceeds

Time Requirements

- One day for overview
- Two days to create survey instrument from class discussion
- One week of research and survey testing (in or out of class)
- Two days to compile results
- Two-to-three days for class presentations

Resources

- Internet access
- Child development resources
- Medical research articles
- Science Rubric

SCIENCE RUBRIC

Exceeds - must receive no more than one 3 and the rest 4s in the other areas of the rubric.
Meets - may receive no more than one 2 and a combination of 3s and 4s in the other areas of the rubric.
Approaches - may receive no more than one 1 and a combination of 2s, 3s or 4s, in the other areas of the rubric.
Begins - must receive at least a 1 in all 3 areas of the rubric.

	KNOWLEDGE Knows and understands scientific terms, facts, concepts, principles, theories and methods.	**APPLICATION** Applies scientific knowledge, skills and methods to manipulate, analyze, synthesize, create and evaluate.	**COMMUNICATION** Communicates scientific knowledge and applications through writing, speech and visual displays.
4	• Descriptions of scientific terms, facts, concepts, principles, theories and methods are complete and correct.	• Applications are thorough, appropriate and accurate.	• Written, oral and/or visual communication is well organized and effective.
3	• Descriptions of scientific terms, facts, concepts, principles, theories and methods are mostly complete and correct.	• Applications are mostly thorough, appropriate and accurate.	• Most of the written, oral and/or visual communication is well organized and effective.
2	• Descriptions of scientific terms, facts, concepts, principles, theories and methods are somewhat complete and correct.	• Applications are somewhat appropriate and accurate.	• Some of the written, oral and/or visual communication is organized and effective.
1	• Descriptions of scientific terms, facts, concepts, principles, theories and methods are minimally present or correct.	• Applications are minimally appropriate and accurate.	• Little of the written, oral and/or visual communication is organized and effective.
0	• All descriptions of scientific terms, facts, concepts, principles, theories and methods are missing and/or incorrect.	• All applications are missing and/or incorrect.	• All of the written, oral or visual communication is missing and/or lacks organization.
Score			