

Principles of Agricultural Science – Animal National Science Education Standards – Grades 9-12 Alignment Matrix

| Key: o = Denotes a correlation in ideas and concepts in both standard and lessons but validation is required to infer direct instruction of standard | Unit 1: Worlds of Opportunity | Unit 2: History and Use of Animals | Unit 3: Animal Handling and Safety | Unit 4: Cells and Tissues | Unit 5: Animal Nutrition | Unit 6: Animal Reproduction | Unit 7: Genetics | Unit 8: Animal Health | Unit 9: Animal Products, Marketing, and Selection |
|---|-------------------------------|------------------------------------|------------------------------------|---------------------------|--------------------------|-----------------------------|------------------|-----------------------|---|
| NSES Content Standard K-12: Unifying Concepts and Processes As a result of activities in grades K-12, all students should develop understanding and abilities aligned with the following concepts and processes— | | | | | | | | | |
| • Systems, order, and organization | o | o | o | o | o | o | o | | o |
| • Evidence, models, and explanation | | | o | o | o | o | o | o | o |
| • Change, constancy, and measurement | | | | o | o | o | o | o | o |
| • Evolution and equilibrium | | o | | o | | | o | o | |
| • Form and function | | | | o | o | o | o | o | o |
| NSES Content Standard A: Science As Inquiry As a result of activities in grades 9-12, all students should develop— | | | | | | | | | |
| • Abilities necessary to do scientific inquiry | | | o | o | o | o | | o | o |
| • Understandings about scientific inquiry | | | o | o | o | o | | o | o |
| NSES Content Standard B: Physical Science As a result of activities in grades 9-12, all students should develop an understanding of— | | | | | | | | | |
| • Structure of atoms | | | | | | | | | |

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|--|-------------------------------|------------------------------------|------------------------------------|---------------------------|--------------------------|-----------------------------|------------------|-----------------------|---|
| <ul style="list-style-type: none"> Structure and properties of matter | | | | | | | | | |
| <ul style="list-style-type: none"> Chemical reactions | | | | o | o | | | | |
| <ul style="list-style-type: none"> Motions and forces | | | | | | | | | |
| <ul style="list-style-type: none"> Conservation of energy and increase in disorder | | | | | | | | | |
| <ul style="list-style-type: none"> Interactions of energy and matter | | | | | | | | | |
| NSES Content Standard C: Life Science As a result of activities in grades 9-12, all students should develop an understanding of— | | | | | | | | | |
| <ul style="list-style-type: none"> The cell | | | | o | | | o | | |
| <ul style="list-style-type: none"> Molecular basis of heredity | | | | | | | o | | |
| <ul style="list-style-type: none"> Biological evolution | | o | | | | o | o | | |
| <ul style="list-style-type: none"> Interdependence of organisms | o | o | o | o | o | | | o | o |
| <ul style="list-style-type: none"> Matter, energy, and organization in living systems | | o | | o | o | o | | o | o |
| <ul style="list-style-type: none"> Behavior of organisms | | o | o | o | | o | | o | o |
| NSES Content Standard D: Earth and Space Science As a result of activities in grades 9-12, all students should develop an understanding of— | | | | | | | | | |
| <ul style="list-style-type: none"> Energy in the earth system | | | | | | | | | |
| <ul style="list-style-type: none"> Geochemical cycles | | | | | | | | | |
| <ul style="list-style-type: none"> Origin and evolution of the earth system | | | | | | | | | |
| <ul style="list-style-type: none"> Origin and evolution of the universe | | | | | | | | | |
| NSES Content Standard E: Science and Technology As a result of activities in grades 9-12, all students should develop— | | | | | | | | | |
| <ul style="list-style-type: none"> Abilities of technological design | | | o | o | o | o | | o | o |
| <ul style="list-style-type: none"> Understandings about science and technology | | | o | o | o | o | | o | o |
| NSES Content Standard F: Science in Personal and Social Perspectives As a result of activities in grades 9-12, all students should develop understanding of— | | | | | | | | | |

| Key: | Unit 1: Worlds of Opportunity | Unit 2: History and Use of Animals | Unit 3: Animal Handling and Safety | Unit 4: Cells and Tissues | Unit 5: Animal Nutrition | Unit 6: Animal Reproduction | Unit 7: Genetics | Unit 8: Animal Health | Unit 9: Animal Products, Marketing, and Selection |
|---|-------------------------------|------------------------------------|------------------------------------|---------------------------|--------------------------|-----------------------------|------------------|-----------------------|---|
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| • Personal and community health | | | o | o | o | | | o | |
| • Population growth | | o | | | | o | | | |
| • Natural resources | o | o | o | | | | | | |
| • Environmental quality | | | o | | | | | | |
| • Natural and human-induced hazards | | | o | | | | | o | |
| • Science and technology in local, national, and global challenges | o | | | | | o | | | o |
| NSES Content Standard G: History and Nature of Science As a result of activities in grades 9-12, all students should develop understanding of— | | | | | | | | | |
| • Science as a human endeavor | | | o | o | | | | | |
| • Nature of scientific knowledge | | o | | | | | | | |
| • Historical perspectives | | o | | | | | | | |

Figure 1. Comparison of *National Science Education Standards (NSES)* and *Principles of Agricultural Science – Animal*.

Source: National Research Council (NRC) *National Science Education Standards*.