

**PHYSICS (Science 112.47)**

**Correlation to Texas Essential Knowledge and Skills**

**CHAPTER 1 - INTRODUCTION TO WATER**

| ACTIVITY                                | KNOWLEDGE AND SKILLS  |
|---|---|
| Surveying the Properties of Water, 1-11 | 112.47.1(A)(B) Scientific processes (...conducts field and laboratory investigations...)<br>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br>112.47.4(A) Science concepts (generate and interpret graphs describing motion...)<br>(C) (demonstrate the effects of forces on the motion of objects)<br>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces) |
| Water Careers, 1-85                     | 112.47.3(D) Scientific processes (describe the connection between physics and future careers)   |

**CHAPTER 2 - DRINKING WATER AND WASTE WATER TREATMENT**

| ACTIVITY  | KNOWLEDGE AND SKILLS   |
|---|--|
| Source Water Protection: Surface Water Sources, 2-33    | 112.47.1(A)(B) Scientific processes (...conducts field and laboratory investigations...)<br>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br>112.47.4(C) Science concepts (demonstrate the effects of forces on the motion of objects)<br>112.47.5(B) Science concepts (observe and describe examples of kinetic and potential energy...)<br><br>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces)   |
| Source Water Protection: Ground Water Sources, 2-43     | 112.47.1(A)(B) Scientific processes (...conducts field and laboratory investigations...)<br>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br>112.47.4(C) Science concepts (demonstrate the effects of forces on the motion of objects)<br>112.47.5(B) Science concepts (observe and describe examples of kinetic and potential energy...)<br>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces)   |
| How Are Detection Limits Set for Water Pollutants, 2-55 | 112.47.1(A)(B) Scientific processes (...conducts field and laboratory investigations...)<br>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br>112.47.4(A) Science concepts (generate and interpret graphs describing motion including the use of real-time technology)<br>(B) (analyze examples of uniform and accelerated motion...)<br>(C) (demonstrate the effects of forces on the motion of objects)<br>112.47.5(B) Science concepts (observe and describe examples of kinetic and potential energy...)<br>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces) |

| ACTIVITY   | KNOWLEDGE AND SKILLS  |
|--|---|
| Source Water Protection: Surface Water Sources, 2-33 | <p>112.47.1(A)(B) Scientific processes (...conducts field and laboratory investigations...)</p> <p>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)</p> <p>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)</p> <p>112.47.4(C) Science concepts (demonstrate the effects of forces on the motion of objects)</p> <p>112.47.5(B) Science concepts (observe and describe examples of kinetic and potential energy...)</p> <p>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces)</p> |
| Wastewater Treatment, 2-73                           | <p>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)</p> <p>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)</p> <p>112.47.4(B) (analyze examples of uniform and accelerated motion...)</p> <p>(C) (demonstrate the effects of forces on the motion of objects)</p> <p>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces)</p>  |
| Home Recycling of Graywater, 2-101                   | <p>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)</p> <p>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)</p> <p>112.47.4(B) (analyze examples of uniform and accelerated motion...)</p> <p>(C) (demonstrate the effects of forces on the motion of objects)</p> <p>112.47.5(C) Science concepts (calculate the mechanical energy and momentum in a physical system...)</p> <p>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces)</p>   |

| ACTIVITY   | KNOWLEDGE AND SKILLS   |
|--|--|
| Source Water Protection: Surface Water Sources, 2-33                   | <p>112.47.1(A)(B) Scientific processes (...conducts field and laboratory investigations...)</p> <p>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)</p> <p>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)</p> <p>112.47.4(C) Science concepts (demonstrate the effects of forces on the motion of objects)</p> <p>112.47.5(B) Science concepts (observe and describe examples of kinetic and potential energy...)</p> <p>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces)</p>  |
| Storm Water: Best Management Practices and Pollution Prevention, 2-123 | <p>112.47.1(A)(B) Scientific processes (...conducts field and laboratory investigations)</p> <p>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)</p> <p>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)</p> <p>112.47.4(B) (analyze examples of uniform and accelerated motion...)</p> <p>(C) (demonstrate the effects of forces on the motion of objects)</p> <p>112.47.5(C) Science concepts (calculate the mechanical energy and momentum in a physical system...)</p> <p>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces)</p> |

**CHAPTER 3 - SURFACE WATER RESOURCES**

| ACTIVITY  | KNOWLEDGE AND SKILLS   |
|---|--|
| <p>Catch Me If You Can-(Two Ways to Measure Stream Flow), 3-7</p> | <p>112.47.1(A)(B) Scientific processes (...conducts field and laboratory investigations)<br/>                     112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br/>                     112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br/>                     112.47.4(A) Scientific concepts (generate and interpret graphs describing motion...)<br/>                         (B) (analyze examples of uniform and accelerated motion...)<br/>                         (C) (demonstrate the effects of forces on the motion of objects)<br/>                     112.47.5(C) Science concepts (calculate the mechanical energy and momentum in a physical system...)<br/>                     112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces)</p> |
| <p>Floods, 3-37</p>   | <p>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br/>                     112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br/>                     112.47.4(A) Scientific concepts (generate and interpret graphs describing motion...)<br/>                         (B) (analyze examples of uniform and accelerated motion...)<br/>                         (C) (demonstrate the effects of forces on the motion of objects)<br/>                     112.47.5(C) Science concepts (calculate the mechanical energy and momentum in a physical system...)<br/>                     112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces)</p>  |
| <p>Thermal Pollution, 3-89</p>                                    | <p>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br/>                     112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br/>                     112.47.5(B) Science concepts (observe and describe examples of kinetic and potential energy...)<br/>                     112.47.7(A)(B) Science concepts (...knows the laws of thermodynamics)</p>  |

## CHAPTER 4 - GROUNDWATER RESOURCES

| ACTIVITY                | KNOWLEDGE AND SKILLS   |
|-------------------------|--|
| Groundwater Basics, 4-1 | 112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br>112.47.4(A) Scientific concepts (generate and interpret graphs describing motion...)<br>(B) (analyze examples of uniform and accelerated motion...)<br>(C) (demonstrate the effects of forces on the motion of objects)<br>112.47.5(C) Science concepts (calculate the mechanical energy and momentum in a physical system...)<br>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces)   |
| What's the Level?, 4-19 | 112.47.1(A)(B) Scientific processes (...conducts field and laboratory investigations...)<br>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br>112.47.4(A) Scientific concepts (generate and interpret graphs describing motion...)<br>(B) (analyze examples of uniform and accelerated motion...)<br>(C) (demonstrate the effects of forces on the motion of objects)<br>112.47.5(C) Science concepts (calculate the mechanical energy and momentum in a physical system...)<br>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces) |

| ACTIVITY                       | KNOWLEDGE AND SKILLS   |
|--------------------------------|--|
| What Goes on Down Under?, 4-27 | 112.47.1(A)(B) Scientific processes (...conducts field and laboratory investigations...)<br>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br>112.47.4(A) Scientific concepts (generate and interpret graphs describing motion...)<br>(B) (analyze examples of uniform and accelerated motion...)<br>(C) (demonstrate the effects of forces on the motion of objects)<br>112.47.5(C) Science concepts (calculate the mechanical energy and momentum in a physical system...)<br>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces) |
| Do You Drink It?, 4-37         | 112.47.1(A)(B) Scientific processes (...conducts field and laboratory investigations...)<br>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br>112.47.4(A) Scientific concepts (generate and interpret graphs describing motion...)<br>(B) (analyze examples of uniform and accelerated motion...)<br>(C) (demonstrate the effects of forces on the motion of objects)<br>112.47.5(C) Science concepts (calculate the mechanical energy and momentum in a physical system...)<br>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces) |
| Hydraulic Head, 4-51           | 112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br>112.47.4(A) Scientific concepts (generate and interpret graphs describing motion...)<br>(B) (analyze examples of uniform and accelerated motion...)<br>(C) (demonstrate the effects of forces on the motion of objects)<br>112.47.5(C) Science concepts (calculate the mechanical energy and momentum in a physical system...)<br>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces)   |

| ACTIVITY  | KNOWLEDGE AND SKILLS   |
|---|--|
| Flow Nets, 4-61   | 112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br>112.47.4(A) Scientific concepts (generate and interpret graphs describing motion...)<br>(B) (analyze examples of uniform and accelerated motion...)<br>(C) (demonstrate the effects of forces on the motion of objects)<br>112.47.5(C) Science concepts (calculate the mechanical energy and momentum in a physical system...)<br>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces) |
| Landfills and the Potential for Groundwater Contamination, 4-97 | 112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br>112.47.4(A) Scientific concepts (generate and interpret graphs describing motion...)<br>(B) (analyze examples of uniform and accelerated motion...)<br>(C) (demonstrate the effects of forces on the motion of objects)<br>112.47.5(C) Science concepts (calculate the mechanical energy and momentum in a physical system...)<br>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces) |

**CHAPTER 5 - WETLANDS AND COASTAL WATERS**

| ACTIVITY                            | KNOWLEDGE AND SKILLS   |
|-------------------------------------|--|
| How Water Processes Move Sand, 5-79 | 112.47.1(A)(B) Scientific processes (...conducts field and laboratory investigations...)<br>112.47.2(A)(B)(C)(D)(E)(F) Scientific processes (...uses scientific methods...)<br>112.47.3(A)(B) Scientific processes (...uses critical thinking and scientific problem solving...)<br>112.47.4(A) Scientific concepts (generate and interpret graphs describing motion...)<br>(B) (analyze examples of uniform and accelerated motion...)<br>(C) (demonstrate the effects of forces on the motion of objects)<br>112.47.5(C) Science concepts (calculate the mechanical energy and momentum in a physical system...)<br>112.47.6(A) Science concepts (identify the influence of mass and distance on gravitational forces) |