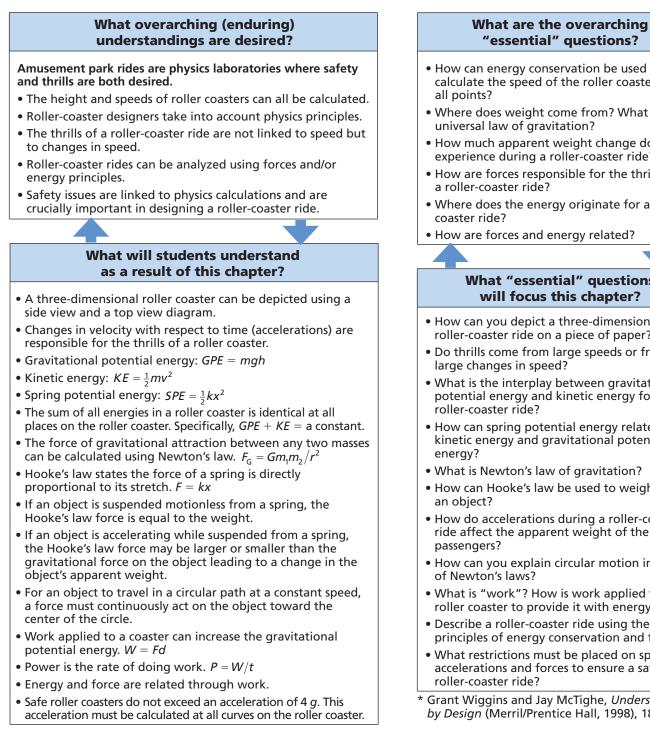
## **Understanding by Design\***

## The Understanding by Design template focuses on the three stages of backward design:

- Identify desired results
- Determine acceptable evidence
- Plan learning experiences



- How can energy conservation be used to calculate the speed of the roller coaster at
- Where does weight come from? What is the
- How much apparent weight change do we experience during a roller-coaster ride?
- How are forces responsible for the thrills of
- Where does the energy originate for a roller-
- How are forces and energy related?

## What "essential" questions will focus this chapter?

- How can you depict a three-dimensional roller-coaster ride on a piece of paper?
- Do thrills come from large speeds or from
- What is the interplay between gravitational potential energy and kinetic energy for a
- How can spring potential energy relate to kinetic energy and gravitational potential
- What is Newton's law of gravitation?
- How can Hooke's law be used to weigh
- How do accelerations during a roller-coaster ride affect the apparent weight of the
- How can you explain circular motion in terms
- What is "work"? How is work applied to a roller coaster to provide it with energy?
- Describe a roller-coaster ride using the physics principles of energy conservation and forces.
- What restrictions must be placed on speeds, accelerations and forces to ensure a safe
- Grant Wiggins and Jay McTighe, Understanding by Design (Merril/Prentice Hall, 1998), 181.

HAPTER