# Collision and Biomechanics

## Assessment

### Car safety features evaluation

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| Criteria | Beginning | Achieved  | Exceeded |
| Explain safety features with reference to forces involved in a collision  | Explains safety features with reference to force and motion. | Explains safety features with reference to energy transfers and transformations, momentum, impact force and impact time.  | Explains safety features with reference to different features of human anatomy and how these are affected by energy transfers and transformations, momentum, impact force and impact time.  |
| Explain safety features with reference to materials used | Identifies properties and characteristics of materials that contribute to car safety features. | Explains how the properties and characteristics of materials impact on energy transfers and transformations in a collision. | Explains how the properties and characteristics of materials impact on energy transfers and transformations, impact force and impact time in a collision.  |
| Evaluate car safety features as they relate to their own body geometry | Identifies safety features that accommodate their body mass and geometry.  | Explains how safety features can be adjusted to accommodate their body mass and geometry and how this might affect their utility in a collision.  | Identifies the functional limitations of existing safety mechanisms for their body mass and geometry, and the potential for unintended stress caused by those features in the event of a collision.  |
| Support claims with evidence | Provides direct comparisons with a more standard body geometry.  | Refers to research to support claims of limited utility of some safety features.  | Refers to research to support claims of additional unintended stress caused by safety features in the event of a collision.  |
| Communicate ideas effectively  | Creates a simple animation that shows the relative position of the body to safety features.  | Creates an annotated animation that shows the effect on a body in a collision.  | Creates an annotated animation that shows the effect on different body parts in a collision.  |
| Explain safety features with reference to forces involved in a collision  | Explains safety features with reference to force and motion. | Explains safety features with reference to energy transfers and transformations, momentum, impact force and impact time.  | Explains safety features with reference to different features of human anatomy and how these are affected by energy transfers and transformations, momentum, impact force and impact time.  |