**Pre-Test: Egg Drop**

**Discussion**

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| What physical forces will act upon the egg as it falls to the ground and then stops suddenly upon impact? |

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| Pick an element of a machine that minimizes or absorbs force, such as a spring, suspension, or cushion. Can you describe how it is engineered to absorb, deflect, or redirect force? Where is the energy stored? Why is this a vital part of the larger object’s design? |

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| Design elements made for absorbing shock and redirecting force are incorporated into thousands of objects and machines. What examples can you think of? |

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| What features could be included in the design of an egg protector to minimize the forces acting upon the egg as it is dropped and hits the ground? |

**Survey**

To what extent would you agree or disagree with the following statements:

1 - Strongly disagree 2 - Somewhat disagree 3 - Neutral 4 - Somewhat agree 5 - Strongly agree

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| **Based on the discussion and my own experience…** | **1** | **2** | **3** | **4** | **5** |
| I understand basic concepts of physics and motion, such as momentum, acceleration, force, mass, and gravity. |  |  |  |  |  |
| I understand how to use simple physics equations to model these forces and how they interact with an egg drop container while it falls to the ground and then comes to an abrupt stop. |  |  |  |  |  |
| I understand some simple design features that can be used to create objects that absorb or redirect forces, for example, to minimize the apparent forces experienced by a driver or an egg. |  |  |  |  |  |
| I have used Autodesk 123D Design before and understand the basics. |  |  |  |  |  |
| I have a solid understanding of the seven phases of design thinking. |  |  |  |  |  |

**What Do You Picture?**

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| Based on your discussions and thinking about your responses to the survey, sketch a few ideas that immediately come into your mind. It can literally be anything! |