

## ORGANIZED BY CHALLENGE (CLICK HERE TO SEE "ORGANIZED BY STANDARDS")

### CATALYST CHALLENGE

### DISCIPLINE CORE IDEA

### STANDARDS

|  |  |   |
|--|--|---|
| <p><b>CHALLENGE 1:</b><br/>Create something that can make a loud noise</p>             | <ul style="list-style-type: none"> <li>- ENGINEERING DESIGN</li> <li>- ENERGY</li> <li>- WAVES AND THEIR APPLICATIONS IN TECHNOLOGIES FOR INFORMATION TRANSFER</li> <li>- MOTION AND STABILITY: FORCES AND INTERACTIONS</li> </ul> | <p>3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 4-PS3-4, 4-PS4-3, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4, MS-PS2-3, MS-PS3-5</p>   |
| <p><b>CHALLENGE 2:</b><br/>Invent a tool that can cut a piece of paper.</p>            | <ul style="list-style-type: none"> <li>- ENGINEERING DESIGN</li> <li>- ENERGY</li> <li>- MOTION AND STABILITY: FORCES AND INTERACTIONS</li> </ul>  | <p>3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 4-PS3-4, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4, MS-PS2-3, MS-PS3-5</p>  |
| <p><b>CHALLENGE 3:</b><br/>Build a machine that draws curvy lines.</p>                 | <ul style="list-style-type: none"> <li>- ENGINEERING DESIGN</li> <li>- ENERGY</li> <li>- WAVES AND THEIR APPLICATIONS IN TECHNOLOGIES FOR INFORMATION TRANSFER</li> <li>- MOTION AND STABILITY: FORCES AND INTERACTIONS</li> </ul> | <p>3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 3-PS2-1, 3-PS2-2, 4-PS3-1, 4-PS3-3, 4-PS3-4, 4-PS4-3, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4, MS-PS2-1, MS-PS2-2, MS-PS2-3, MS-PS3-1, MS-PS3-5</p> |
| <p><b>CHALLENGE 4:</b><br/>Make a ride for one of your toys.</p>                       | <ul style="list-style-type: none"> <li>- ENGINEERING DESIGN</li> <li>- ENERGY</li> <li>- MOTION AND STABILITY: FORCES AND INTERACTIONS</li> </ul>  | <p>3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 3-PS2-2, 4-PS3-1, 4-PS3-3, 4-PS3-4, MS-PS2-2, MS-PS2-3</p>   |
| <p><b>CHALLENGE 5:</b><br/>Create something that moves in a straight line</p>          | <ul style="list-style-type: none"> <li>- ENGINEERING DESIGN</li> <li>- ENERGY</li> <li>- MOTION AND STABILITY: FORCES AND INTERACTIONS</li> </ul>  | <p>3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 3-PS2-1, 3-PS2-2, 4-PS3-1, 4-PS3-3, 4-PS3-4, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4, MS-PS2-1, MS-PS2-2, MS-PS2-3, MS-PS3-1, MS-PS3-5</p>          |
| <p><b>CHALLENGE 6:</b><br/>Build a creature with spinning arms.</p>                    | <ul style="list-style-type: none"> <li>- ENGINEERING DESIGN</li> </ul>   | <p>3-5-ETS1-1, 3-5-ETS1-3</p>   |
| <p><b>CHALLENGE 7:</b><br/>Make a machine that can scramble an egg.</p>                | <ul style="list-style-type: none"> <li>- ENGINEERING DESIGN</li> <li>- ENERGY</li> </ul>   | <p>3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 4-PS3-4, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4</p>  |
| <p><b>CHALLENGE 8:</b><br/>Invent a robot that moves without wheels</p>                | <ul style="list-style-type: none"> <li>- ENGINEERING DESIGN</li> <li>- ENERGY</li> <li>- MOTION AND STABILITY: FORCES AND INTERACTIONS</li> </ul>  | <p>3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 3-PS2-1, 3-PS2-2, 4-PS3-1, 4-PS3-4, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4, MS-PS2-1, MS-PS2-2, MS-PS2-3, MS-PS3-1, MS-PS3-5</p>                   |
| <p><b>CHALLENGE 9:</b><br/>Build something that can launch a wheel across the room</p> | <ul style="list-style-type: none"> <li>- ENGINEERING DESIGN</li> <li>- ENERGY</li> <li>- MOTION AND STABILITY: FORCES AND INTERACTIONS</li> </ul>  | <p>3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 3-PS2-2, 4-PS3-1, 4-PS3-3, 4-PS3-4, 5-PS2-1, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4, MS-PS2-1, MS-PS2-2, MS-PS2-3, MS-PS3-1, MS-PS3-5</p>          |
| <p><b>CHALLENGE 10:</b><br/>Create a vehicle with a suspension system.</p>             | <ul style="list-style-type: none"> <li>- ENGINEERING DESIGN</li> </ul>   | <p>3-5-ETS1-1, 3-5-ETS1-3, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4</p>   |

# ORGANIZED BY STANDARD cont.

## BOOSTER PACK CHALLENGE

## DISCIPLINE CORE IDEA

## STANDARDS

**BOOSTER CHALLENGE 1:**  
Build a robot that can push or pull another toy.

- ENGINEERING DESIGN  
- ENERGY  
- MOTION AND STABILITY: FORCES AND INTERACTIONS

3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 3-PS2-1, 3-PS2-2, 4-PS3-1, 4-PS3-3, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4, MS-PS2-1, MS-PS2-2, MS-PS2-3, MS-PS3-1, MS-PS3-5

**BOOSTER CHALLENGE 2:**  
Invent something with blinking lights.

- ENGINEERING DESIGN  
- ENERGY  
- WAVES AND THEIR APPLICATIONS IN TECHNOLOGIES FOR INFORMATION TRANSFER

3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 4-PS3-4, 4-PS4-3, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4

**BOOSTER CHALLENGE 3:**  
Make something with a light you can dim.

- ENGINEERING DESIGN  
- ENERGY

3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 4-PS3-4, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4

**BOOSTER CHALLENGE 4:**  
Build a machine that can climb a string.

- ENGINEERING DESIGN  
- ENERGY  
- MOTION AND STABILITY: FORCES AND INTERACTIONS

3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 3-PS2-1, 3-PS2-2, 4-PS3-1, 5-PS2-1, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4, MS-PS2-2

**BOOSTER CHALLENGE 5:**  
Create a device that can send a message in Morse code.

- ENGINEERING DESIGN  
- ENERGY  
- MOTION AND STABILITY: FORCES AND INTERACTIONS

3-5-ETS1-1, 3-5-ETS1-2, 3-5-ETS1-3, 4-PS3-4, 4-PS4-3, MS-ETS1-1, MS-ETS1-2, MS-ETS1-3, MS-ETS1-4



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