

# Unit Planning Frame

## Unit Topic: Forces, Friction and Newton's Laws

How do these activities exploit the generative nature – its richness, accessibility, and centrality – of the topic?

- Creating Curiosity, Inquire based, & Justify & Building explanations

### Understanding Goals

What understanding goals do these activities address?

- 1) Describe what is there
- 2) Making Connections & Reasoning with evidence
- 3) Building explanations & Reasoning with evidence
- 4) Making connections & Building explanations & Uncovering complexity
- 5) Describe what's there & Uncovering complexity & Building explanations

### Understanding Performances

What activities will students engage in to develop and demonstrate their understanding? What do these activities reveal about students' thinking and understanding?

- 1) Carnival of forces lab - Students will see 6 type of forces in motion and identify if contact or noncontact forces. THINK, PUZZLE, EXPLORE
- 2) Read about Friction Pg 16-17 HEADLINE
- 3) Friction Lab - Students will test bricks on different surfaces & with different weights with a force meter. CLAIM, SUPPORT, QUESTION
- 4) Friction Friend or Foe - GENERATE, SORT, CONNECT, ELABORATE (without a concept map) - Then students will write/draw of a real life situation where friction is helpful or harmful.
- 5) Newton's laws - SEE, THINK, LEARN, WONDER –  
See - what do you see in the demo Think - What do you think Newton Discovered? Learn - Name the real law Wonder - How does this law change your life?

### Learning Challenges

What challenges to learning do these activities try to address and how?

- 1) Different types of forces as well as the difference between contact and noncontact forces
- 2) The difference between static and Kinetic friction
- 3) How friction changes with weight and surfaces
- 4) How Friction affects students' lives
- 5) How Newton's laws affect students' lives

### Assessment: Keeping the End in Mind

What does understanding this topic look like? What counts as evidence of understanding? What do I

- 1) Formative assess. - Think, puzzle, explore - Know differences 2) Headline has meaning - what makes you say that to explain headline 3) Cerc - Rough/more friction & more weight/more friction 4) Final 2 pictures (elaborate) 5) Formative assess. - Think & Wonder - Are students thinking?