Using a Driving Question Board to engage students in explaining phenomena
Health in Our Hands: What controls my health?

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Michigan Science Teacher Association (MSTA)
March 2018
CREATE for STEM Institute

• COLLABORATIVE research and innovation projects
• Partners in K-12 schools, higher education, research institutes, community organizations
• In Michigan, across the U.S., and worldwide
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What will we do today?

1. Build understanding about the Next Generation of Science Standards (NGSS)

2. Demonstrate the use of a Driving Question Board in class

3. Discuss ways to incorporate a Driving Question Board into teaching
What’s new in the Framework and the Next Generation Science Standards (NGSS)?

“Figuring Out” vs. “Learning About”

1. Focus on **explaining phenomena** or designing solutions to problems
2. **3-Dimensional Learning** (Disciplinary core ideas, scientific and engineering practices, crosscutting concepts)
3. Instruction builds towards **performance expectations**
4. **Coherence**: building and applying ideas across time
The Framework for K-12 Science Education – 3D learning

Knowing and doing **must work together** to form useable understanding that enables problem-solving, decisions making, explaining real-world phenomena, and integrating new idea.

Integrating the three dimensions

✓ **Scientific and Engineering Practices (SEP)** – the major practices that scientists employ as they investigate and build models and theories about the world

✓ **Crosscutting concepts (CCC)** – concepts with application across all domains

✓ **Disciplinary core ideas (DCI)** – a set of core ideas in science
What is a phenomenon?

A **phenomenon** is a fact or situation that we can observe, **explain** and predict

Think of phenomena!

- From our studies in class?
- From your personal life?
Examples of phenomena

Why do volcanoes erupt?

How are mountains formed?

Why do some mixtures of chemicals explode?

Why does water boil?
Meet Monique
a teenager struggling with type II

- Video Monique
Try it out!
Developing a DQB
# Health in Our Hands: What controls my health?

<table>
<thead>
<tr>
<th>Lesson</th>
<th>Driving Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lesson 1</td>
<td>Why does Monique have diabetes?</td>
</tr>
<tr>
<td>Lesson 2</td>
<td>How can we describe Monique’s diabetes?</td>
</tr>
<tr>
<td>Lesson 3</td>
<td>How does Monique’s family affect her diabetes?</td>
</tr>
<tr>
<td>Lesson 4</td>
<td>How does where Monique lives and what she does affect her health?</td>
</tr>
<tr>
<td>Lesson 5</td>
<td>How do Monique’s characteristics and environment affect her health?</td>
</tr>
<tr>
<td>Lesson 6</td>
<td>What can Monique do to make her environment healthier?</td>
</tr>
<tr>
<td>Lesson 7</td>
<td>How can we work together to make our environment healthier?</td>
</tr>
</tbody>
</table>
How can we use this in class?
Take home messages

From a curriculum standpoint:
Figuring out vs. learning about

From a teacher standpoint:
Using DQB in class to figure out phenomena
Thank you for joining us!

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This project was supported by a Science Education Partnership Award (SEPA) from the National Institutes of Health, Office of the Director, under Award Number R25OD16534-1. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health.