3D L|A: Learning Architecture
Instructional Planning Tool
ASTE 2020
Introduction

- NURTURES, University of Toledo
  Teacher Professional Development
  + Family & Community Engagement

Focus:
- Early childhood science education
- Inquiry-based learning
- 3 Dimensions

- Who are you?
Session Goals

• Introduce L|A tools and process
• Apply L|A tools and process
• Reflections on experience
• Brainstorm for future implementation
Overview

• Process:
  • Condensed & scaffolded
  • Seeded with real teacher scenarios
  • End goal – unit outline and lesson ideas

• Materials:
  • Boards & sticky notes
  • Resource Packet
    • Teacher scenario
    • “Construction” materials

• Groups: A,B,C
Learning Architecture

The NURTURES Learning Architecture facilitates the development of robust learning plans comprised of a structured series of lessons integrating 3 dimensional learning for the early childhood classroom.

3D Specifications
Unpacking of NGSS elements that will support 3D learning throughout the developed unit

Learning Blueprint
Deep thinking on supporting 3D learning in context to relevant concepts and specifications

Lesson Construction
Lesson plans with specific detail for practical application of learning blueprint structure

3 Dimensional Planning in Support of 3 Dimensional Learning

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Group time!
3D Specifications

Unpacking of NGSS elements that will support 3D learning throughout the developed unit

Learning Architecture: 3D Specifications

<table>
<thead>
<tr>
<th>Performance Expectation Theme</th>
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<tbody>
<tr>
<td>Disciplinary Core Ideas (DCIs)</td>
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<tr>
<td>Science &amp; Engineering Practices (SEP)</td>
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<tr>
<td>Crosscutting Concepts (CCs)</td>
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<td>Phenomena &amp; Questions</td>
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Learning Performances

Brainstorm a set of **actions** students will take over the course of the unit that will facilitate their 3 dimensional learning.

Students **utilize a SEP** to experience **a relevant Phenomena** through **a specific CC** to learn key **Disciplinary Core Ideas**.

Teachers explore 3D elements and identify student-relevant phenomena and questions that support development of learning performances.

Brainstorm concepts that can be used to explore DCI topics. Suggest questions about these concepts that can frame more in-depth investigations in the context of SEPs and CCs that would be relevant to students.
Process: 3D Specifications

• We loaded the boards with PE/DCIs/SEPs/CCs, a few Phenomena & Questions, and Learning Performances

• We are asking you to add:
  + 2-3 Phenomena & Questions
  + 2-3 Learning Performances
Learning Blueprint

Deep thinking on supporting 3D learning in context to relevant concepts and specifications

Questions

Utilize the phenomena and question brainstorming from the 3D Specifications to select questions that will structure and motivate the advancement of 3D learning as the planned unit progresses.

Learning Performances

In the Learning Blueprint learning performances should be matched with the questions to drive the plan structure.

Students utilize a SEP to experience a relevant phenomena through a specific CC to learning key DCIs.

Tasks

Specific activities that achieve the learning performances will comprise the tasks involved to deliver 3D learning experiences to students. Tasks are later used to develop learning plans.

Meaningful Learning Outcomes

Specific student learning outcomes should be documented. This step in the process serves as a metacognitive check on the development of learning performances, tasks, and the 3D learning of source DCI.

Teachers refine and synthesize questions and learning performances. They create tasks and outcomes, supporting and assessing their intended 3D learning goals.
Process: Learning Blueprint

• We loaded the boards with a few (Phenomena) Questions & Learning Performances

• We are asking you to add:
  + 2-3 of your Questions
  + 2-3 of your Learning Performances
  + Tasks
  + MLOs
Lesson Construction

Lesson plans with specific detail for practical application of learning blueprint structure

Tasks in support of learning

Utilize Learning Blueprint Tasks to design the Learning Map and Learning Plans.
*Refer to the Blueprint for sequencing and 3D learning support.

Learning Map

Define a sequence for unit lessons. Multiple lessons of varying duration and scope are required to achieve the intended learning captured in the Blueprint.

Learning Plans

Individual plan providing instructional context and details sufficient to deliver the lesson.
Process: Lesson Construction

Learning Map

Unit: WEATHER

Name(s): GRANT/TIFFANY
Target Grade Level: K
Domain(s): ES

WEEK 1
- BEST RECENT EVER
- WHAT WE SUG... DAILY WEATHER GRAPH

WEEK 2
- WEATHER - PUTTING THE PARTS TOGETHER
- DIY THERMOMETER

WEEK 3
- DIY RAIN GAUGE DESIGN BUILD TEST
- RECENT FORECAST

WEEK 4
- DIY WIND INSTRUMENT
- WHEN WEATHER GETS WILD

Symbol Key:
- Complete in one session
- Extends over two sessions
- Extends over multiple sessions
- Continues into following week
- Math or Literacy Integration
Process: Lesson Construction

• We are asking you to draft:
  + L|A Learning Map
  + Mock-up some epic learning plans
Sharing

• We are asking 2-3 volunteer groups to share:
  + L|A Learning Map highlights
  + Lesson ideas
Debrief & Discussion

• How was your experience with the L|A process and tools?

• When were you most consciously thinking about all three dimensions of the NGSS?

• In your own context, how might this process, or elements of this process be useful for you?

• What are other similar/related/connected processes?

• Additional thoughts, comments, or feedback?
Contact Information
nurtures@utoledo.edu

Dr. Susanna Hapgood
susanna.hapgood@utoledo.edu

Jeanna Heuring
jeanna.heuring@utoledo.edu

Grant Wilson
grant.wilson@utoledo.edu

Program PIs:
Dr. Charlene M. Czerniak, Dr. Scott Molitor, Dr. Susanna Hapgood,
Dr. Joan Kaderavek