The Critical Role of Information:

STEM Learning By Creating Scientific Information

Kyungwon Koh, PhD
Assistant Professor
The University of Oklahoma

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Meteorology Makers’ Club: School library afterschool program

- Once a week for 2 hours
- OU SLIS, Norman Public Schools, and OK Climatological Survey
- 19 middle schoolers
- School librarian, science teacher, school librarian supervisor, meteorologist, information scientist and graduate students
- Data: individual and group interviews, reflective learning journals, participant observation, pre/post surveys, and teachers’ debriefing session
Severe Weather Diagram
Forecast

<table>
<thead>
<tr>
<th></th>
<th>HIGHS</th>
<th>LOWS</th>
<th>Chance of Rain</th>
</tr>
</thead>
<tbody>
<tr>
<td>MONDAY</td>
<td>86°</td>
<td>53°</td>
<td>20%</td>
</tr>
<tr>
<td>TUESDAY</td>
<td>89°</td>
<td>54°</td>
<td>20-30%</td>
</tr>
<tr>
<td>WEDNESDAY</td>
<td>86°</td>
<td>61°</td>
<td>20-40%</td>
</tr>
<tr>
<td>THURSDAY</td>
<td>83°</td>
<td>66°</td>
<td>20-50%</td>
</tr>
<tr>
<td>FRIDAY</td>
<td>78°</td>
<td>56°</td>
<td>30%</td>
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</table>
Soil Moisture and PH Measure

Project: Papa Grayson’s Fresh Garden
Weather Goddesses

Each personifying a weather-related phenomenon
<table>
<thead>
<tr>
<th>Day</th>
<th>Comments</th>
<th>Rain %</th>
<th>High</th>
<th>Low</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday Nov 3</td>
<td>Chance T-Storms</td>
<td>30%</td>
<td>66</td>
<td>52</td>
</tr>
<tr>
<td>Tuesday Nov 4</td>
<td>T-Storms Likely</td>
<td>70%</td>
<td>59</td>
<td>43</td>
</tr>
<tr>
<td>Wednesday Nov 5</td>
<td>Sunny</td>
<td>0%</td>
<td>68</td>
<td>45</td>
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</tbody>
</table>

INQUIRY/MAKING PROCESSES
Guided Inquiry Model

Guided Inquiry Design Process

# A Year of Making

<table>
<thead>
<tr>
<th>Phase 1: Building Skills</th>
<th>Phase 2: Independent Project Idea</th>
<th>Phase 3: Making</th>
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</thead>
<tbody>
<tr>
<td>Building Skills</td>
<td>Explore Ideas</td>
<td>Bringing an Idea To Life</td>
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<tr>
<td></td>
<td>Share Ideas</td>
<td>Project Idea Presentation &amp; Refinement</td>
</tr>
<tr>
<td></td>
<td>Individual Ideas</td>
<td>Project Proposals</td>
</tr>
</tbody>
</table>

Learning
- Learning new concepts
- Developing skills

Problem Solving
- Learning new concepts
- Developing skills
- Trying things out
- Reflecting
- Receiving feedback
- Applying new knowledge

Creating

Designing and Organizing
- Putting things together
- Revising and editing
- Moving things around

CREATING
CREATING

Seeking information to learn scientific concepts;
Finding tutorials and examples;
Seeking inspiration

Using

Applying knowledge;
Evaluating and selecting information

Managing

Managing information

Sharing

Sharing feedback;
Teaching others

Seeking

Seeking information;