Student Learning & Sense-Making

Field-based Science Learning
- Observing, Wondering, & Question Asking
- Data Collection, Modeling, & Explanations
- Classroom Discourse & Ethical Deliberating

Complex Socio-Ecological Systems
- Understanding & Reasoning
- Decision-making

Nature-culture relations
- Culture & learning
- Family & Community
- Place

Power & Historicity

- All Human activity is part of complex webs of social and environmental relationships
- Differences in nature-culture relations begin at a young age
- Innovative solutions for environmental issues requires bringing together diverse ways of knowing

- Field-based activities that focus on observations of same phenomena in places over time
- Data collection; tracking patterns & changes over time & place
- Classroom activities that focus on developing questions based on observations & wonderings
- Leveraging discussion practices toward socio-ecological systems thinking

- Families as participants in children's learning
- Drawing on family & community knowledge systems
- Making models based on integration of family/cultural knowledge/practices & scientific data

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SEASONAL STORYLINE FOR FIELD-BASED SCIENCE EDUCATION
Why do Seasons matter?
Place driven co-design with children, families, community & educators

NGS Practices

Asking Questions & Defining Problems

In the Field

Seasonal Storyline Launch:
Why is phenology important?
Socio-ecological history of place

Field & Garden Wondering Walks
Preparing for outside investigation

Family Wondering Walk
Family Wondering Walk
Family Wondering Walk

In Classrooms

Wondering Wall
Organizing wonderings and identifying themes

Field & Garden Wondering Walks

What do we want to learn? Questions & Predictions

Family Wondering Walk
Family Wondering Walk
Family Wondering Walk

With Family & Community

Communicating Explanations & Proposing Solutions

Communicating
Sharing with Family, School, & Community

Developing New Questions

REFLECTION
QUESTIONS DELIBERATION

Socioecological Decision-making

NGSS Practices

Designing and Carrying Out Field Based Investigations

Analyzing & Interpreting Data:
Refining Questions, Refining Models & Visualizations

Sharing insights and explanations

What do we want to learn? Questions & Predictions

Relations & Models
Developing socio-ecological relations & models

Field & Garden Data Collection

Family Data Collection

Socioecological Decision-making

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