SCIENCE THROUGH THE EYES AND HANDS OF A PRESCHOOLER

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INTRODUCTIONS

• WHO IS IN OUR AUDIENCE?
• PARTNERSHIP WITH EDUCARE AND UNIVERSITY OF MIAMI
• APPLICATION OF ESI AT EDUCARE
OBJECTIVES FOR TODAY

• EARLY SCIENCE FRAMEWORK
• IDENTIFY COMMON SCIENCE PRACTICES, CROSSCUTTING CONCEPTS AND CORE IDEAS IN EVERYDAY LEARNING OPPORTUNITIES
• EXPLORE EVERYDAY OPPORTUNITIES WHERE SCIENCE IS ALWAYS PRESENT
• MAKE SCHOOL TO HOME CONNECTIONS
• IDENTIFY OTHER OPPORTUNITIES IN OUR DAY FOR SCIENCE
EARLY SCIENCE FRAMEWORK PRACTICES
THE BEHAVIORS THAT SCIENTISTS ENGAGE IN TO EXPLORE AND DEVELOP KNOWLEDGE

• MAKING OBSERVATIONS (HOW CHILDREN USE THEIR SENSES AND TOOLS FOR OBSERVATION TO COLLECT INFORMATION ABOUT THEIR WORLD)

• ASKING QUESTIONS AND DEFINING PROBLEMS (HOW CHILDREN DISPLAY INTEREST AND CURIOSITY, DEMONSTRATE WHAT THEY KNOW AND WHAT THEY DON'T)

• MAKING PREDICTIONS (HOW CHILDREN USE KNOWLEDGE FROM OBSERVATIONS AND PRIOR EXPERIENCES TO MAKE AN INFORMED HYPOTHESIS)

• DEVELOPING AND USING MODELS (HOW CHILDREN MENTALLY AND PHYSICALLY REPRESENT REAL WORLD PHENOMENA TO DEVELOP AND DEEPEN THEIR UNDERSTANDING)

• PLANNING AND CARRYING OUT INVESTIGATIONS (HOW CHILDREN ORGANIZE AND IMPLEMENT A PROCEDURE TO TEST A HYPOTHESIS)

• USING MATH AND COMPUTATIONAL SKILLS (HOW CHILDREN USE MATHEMATICS TO QUANTIFY AND DESCRIBE THEIR WORLD)

• DOCUMENTING, ANALYZING AND INTERPRETING DATA (HOW CHILDREN RECORD, ORGANIZE, AND MAKE SENSE OF DATA)

• CONSTRUCTING EXPLANATIONS AND DESIGNING SOLUTIONS (HOW CHILDREN INTERPRET DATA TO GENERATE EVIDENCE-BASED ANSWERS TO THEIR QUESTIONS AND DESIGN SOLUTIONS TO PROBLEMS)

• COMMUNICATING INFORMATION (HOW CHILDREN DOCUMENT AND SHARE THEIR EXPLANATIONS AND CONCLUSIONS)
EARLY SCIENCE FRAMEWORK CROSSCUTTING CONCEPTS

BIG IDEAS THAT HELP SCIENTISTS CONNECT KNOWLEDGE FROM VARIOUS EXPERIENCES TO DRAW CONCLUSIONS AND CREATE A COHERENT VIEW OF THE WORLD

- PATTERNS (THE IDEA THAT EVENTS, PROCESSES, AND STRUCTURES REPEAT)
- CAUSE AND EFFECT (THE IDEA THAT A CHANGE IN ONE EVENT, PROCESS, OR STRUCTURE IS THE RESULT OF SOMETHING ELSE)
- SCALE, PROPORTION, AND QUANTITY (THE IDEA THAT THINGS DIFFER IN SIZE AND QUANTITY, WHICH CAN BE USED TO HELP IDENTIFY PATTERNS AND DRAW CONCLUSIONS)
- SYSTEMS AND SYSTEM MODELS (THE IDEA THAT ALL THINGS EXIST AND INTERACT IN ORGANIZED SYSTEMS)
- STRUCTURE AND FUNCTION (THE IDEA THAT THE WAY THINGS ARE BUILT AND/OR ORGANIZED DETERMINES WHAT THEY DO AND HOW THEY DO IT)
- STABILITY AND CHANGE (THE IDEA THAT SOME THINGS CHANGE AND SOME THINGS STAY THE SAME)
# Early Science Framework Core Ideas

The content that provide a context for engaging in practices and developing an understanding of crosscutting concepts.

## Physical Science
- Matter and its interactions
- Motion and stability
- Energy
- Waves and their applications

## Earth and Space Science
- Earth’s place in the universe
- Earth’s systems
- Earth & humanity

## Life Science
- From molecules to organisms
- Ecosystems
- Heredity and traits
- Biological evolution

## Engineering, Technology & the Application of Science
- Engineering design
- Links among engineering, technology, science and society
LOOKING FOR LEARNING

• WATCH THE VIDEO
• IDENTIFY COMMON PRACTICES THAT THE CHILDREN ARE ENGAGING IN
• WHAT CROSSCUTTING CONCEPTS MIGHT THEY BE EXPLORING?
• WHAT CORE IDEA DOES THIS FIT INTO?
• WHAT OTHER LEARNING DOMAINS BESIDES SCIENCE ARE INVOLVED?
TIME TO EXPLORE

• EXPLORE THE MATERIALS AS PRESCHOOLERS MIGHT EXPLORE
  • PLAY-DOH
  • NATURE
  • WATER
  • BALLS AND RAMPS

• USING THE EARLY SCIENCE FRAMEWORK IDENTIFY:
  • COMMON PRACTICES THAT THE CHILDREN ARE ENGAGING IN
  • WHAT CROSSCUTTING CONCEPTS MIGHT THEY BE EXPLORING?
  • WHAT CORE IDEA DOES THIS FIT INTO?

• USING THE RIGHT QUESTION AT THE RIGHT TIME HANDOUT IDENTIFY:
  • WHAT QUESTIONS MIGHT YOU AS A CAREGIVER ASK THE CHILDREN
WHAT DID WE DISCOVER?

• WHAT PRACTICES, CROSSCUTTING CONCEPTS AND CORE IDEAS ARE POSSIBLE?
• WHAT QUESTIONS COULD WE ASK CHILDREN?
• HOW COULD WE MAKE A SCHOOL TO HOME CONNECTION?
• WHAT OTHER MATERIALS COULD WE USE WITH THESE MATERIALS?
LOOKING FOR LEARNING

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• WHAT CORE IDEA DOES THIS FIT INTO?
• WHAT OTHER LEARNING DOMAINS BESIDES SCIENCE ARE INVOLVED?
OTHER WAYS TO APPLY SCIENCE CONCEPTS

• WHAT OTHER EVERY DAY ACTIVITIES PRESENT OPPORTUNITIES FOR ENGAGING IN SCIENCE PRACTICES?

• HOW MIGHT THIS FIT INTO A THEME/PROJECT/STUDY?

• WHAT OTHER WAYS CAN YOU BUILD A SCHOOL TO HOME CONNECTION?