REPRESENTATION AND CREATIVITY

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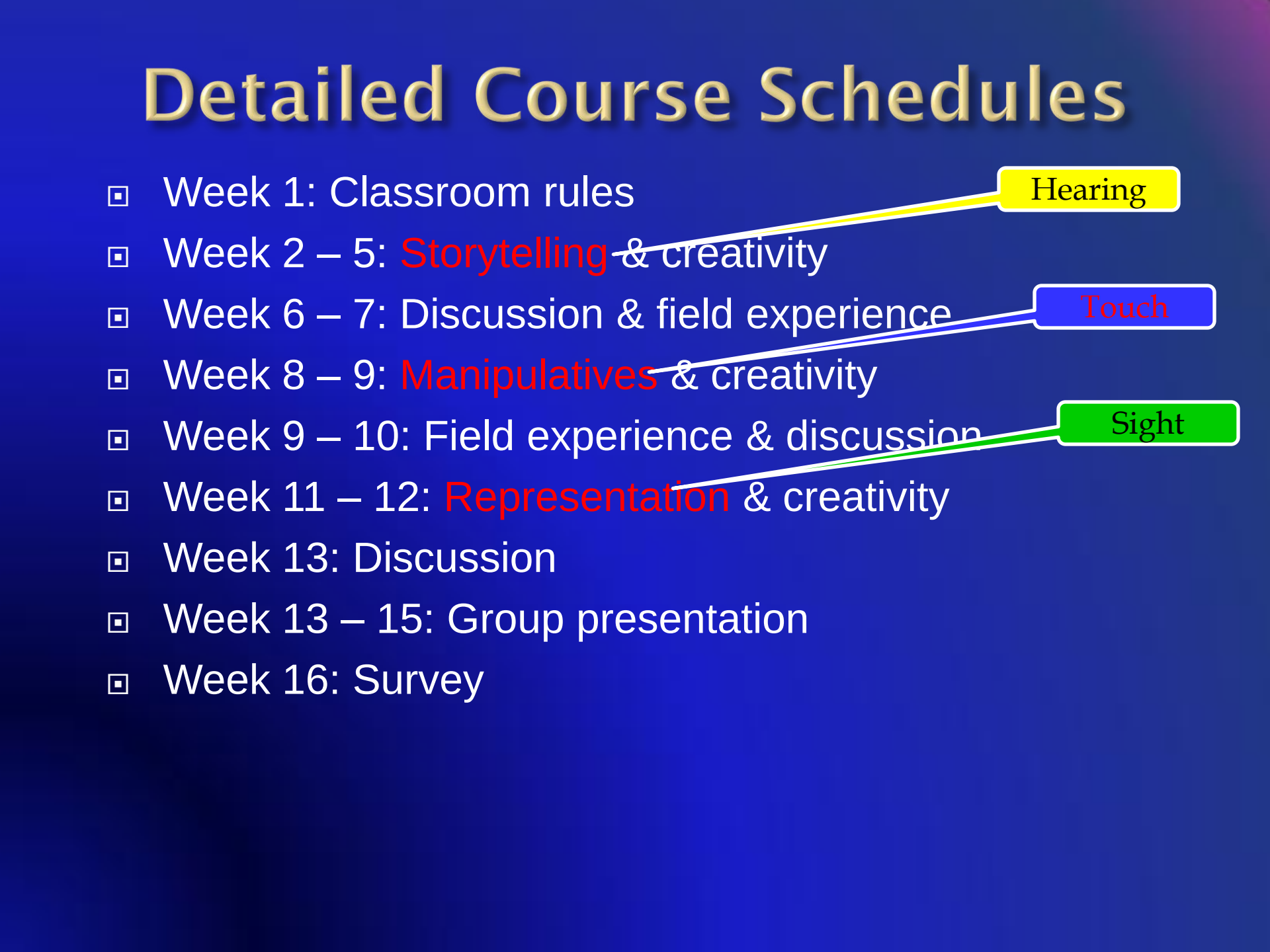
Detailed Course Schedules

- Week 1: Classroom rules
- Week 2 – 5: Storytelling & creativity
- Week 6 – 7: Discussion & field experience
- Week 8 – 9: Manipulatives & creativity
- Week 9 – 10: Field experience & discussion
- Week 11 – 12: Representation & creativity
- Week 13: Discussion
- Week 13 – 15: Group presentation
- Week 16: Survey



Epistemology and Representation

- Creating formal and informal representations to communicate mathematical ideas
- Translating activities among representations
- Using representations to model and interpret STEAM phenomena

(NCTM, 2000)

Creating Representations

- Languages, fingers, drawings, diagrams, charts, graphs, symbols
- Images of mathematical ideas
- The common mathematical nature of different situations
- Representations make mathematical ideas more concrete and available for reflection
- Organizing one's thinking
- Translating verbal information (mathematical concepts, operations, and relations) into symbolic expressions and equations

(NCTM, 2000)

Translating between Representations

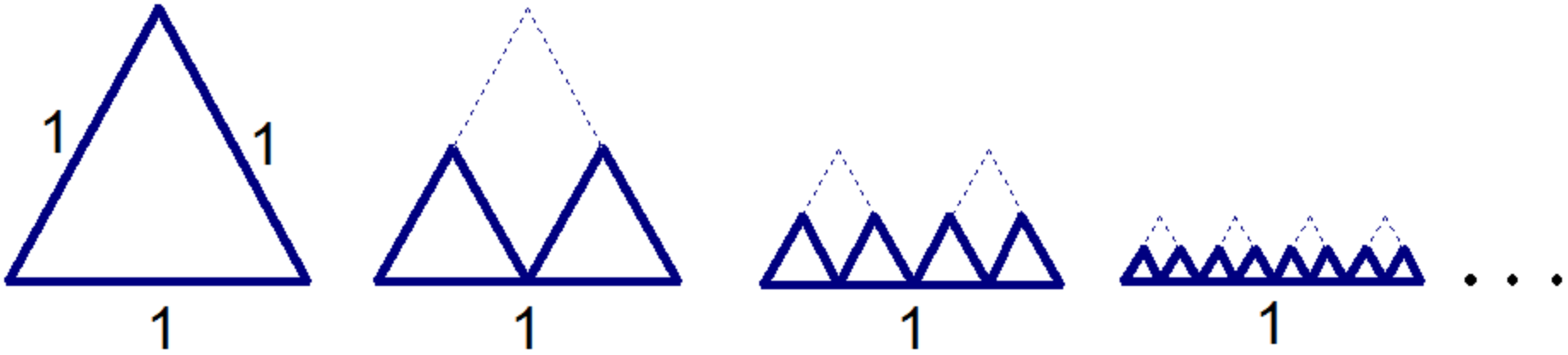
- Conceptual understanding is enhanced
- Different ways of explaining mathematical ideas
- Advantages and disadvantages in one representation
- Synergic effects on conceptual understanding and creativity through translation

Using Representations to model and interpret phenomena

- Doing mathematics rather than knowing mathematics
- Opportunity to understand the power and beauty of visualization
- Use of visualization in students' personal lives, in the workplace, and in further study

(NCTM, 2000)

Limitation of visualization



Reference

- National Council of Teachers of Mathematics(2000). *Principles and standards for school mathematics*. Reston, VA: NCTM.


Q&A