

## Mobilize Mathematics: Mobile Learning Meets the Common Core Curriculum



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## MOBILIZE MATHEMATICS: MOBILE LEARNING MEETS THE COMMON CORE CURRICULUM

### GUIDING QUESTIONS

1. What are the overall differences to the teaching and learning of mathematics with the Common Core State Standards?
2. What can I do with a mobile device that I could not do with a traditional approach to the teaching and learning of mathematics?
3. What if I have students with different devices?



### COMMON CORE CURRICULUM: MATHEMATICAL PRACTICES

The Standards for Mathematical Content are a balanced combination of procedure and understanding.

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.



### COMMON CORE CURRICULUM: MATHEMATICAL PRACTICES

5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.



### CONNECT WITH THE REAL WORLD

*Real-world contexts provide a solid base for building understandings (Clements & Sarama, 2009), and enhances students' ability to think and reason mathematically outside the classroom (Lehrer & Chazan, 1998).*



### SKETCHPAD EXPLORER

SketchPad Explorer (Free: IOS) Geometry App.  
[http://www.dynamicgeometry.com/General\\_Resources/Sketchpad\\_Explorer\\_for\\_iPad.html](http://www.dynamicgeometry.com/General_Resources/Sketchpad_Explorer_for_iPad.html)  
 Measure a Picture



### NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS.

Teaching math in context rather than in isolation is among the strategies educators should employ in their effort to improve students' math achievement, says Linda Gojak, president of the NCTM. "We are moving away from traditional methods to help kids deeply understand and identify why these things [methods] work; a lot of kids don't get math, and also for them to explain the reasoning, and not just [give] the right answer" (Gojak, 2012).



### TRASH DATA COLLECTION

- Measure
- Photograph
- Collect Data

- Interactive Teaching Program (ITPs)  
<http://www.taw.org.uk/llc/itp/Index.html>
- Use Rover to play Flash on IOS systems



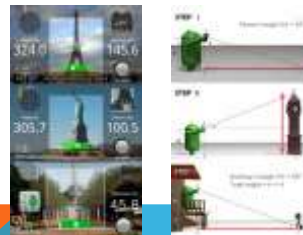
### NCTM ILLUMINATIONS

Data  
 Accessing and Investigating Population Data  
<http://illuminations.nctm.org/LessonDetail.aspx?id=U95>  
 Measurement  
 Area Contractor <http://illuminations.nctm.org/LessonDetail.aspx?id=L762>



### MEASUREMENT APPS

Smart Measure (free: android)  
<https://play.google.com/store/apps/details?id=kr.sira.measure>



EasyMeasure (free: IOS) <https://itunes.apple.com/us/app/easymeasure-measure-your-camera/id349530105?mt=8>

**Distance Meter Free (IOS)**  
<https://itunes.apple.com/us/app/distance-meter-free/id295664581?mt=8>



**Distance Calculator (Android)**  
<http://bit.ly/13ewITG>



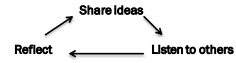
**Photo Measures \$0.99**  
<https://itunes.apple.com/us/app/photo-measures/id411233767?ign-mpt=uo%3D6&mt=8>



### DISCUSSION IS KEY

*Vygotsky (1978), a keen advocate for social constructivism, believed that learning in isolation would not lead to cognitive development. He described social interaction as a way in which students can develop understanding, through internalization of the ideas they receive through conversations with others.*

*Social interaction and reflective thinking are crucial components if students are to construct meaning and deep understanding of the concepts (Clements, 1998; Richardson, 1999).*



### MIRRORING

**Apple TV \$99**  
**AirServer** <http://www.airserverapp.com/>  
 Standard License is \$14.99 for 5 PCs or Macs.



### PRACTICE APPS

The Standards for Mathematical Content are a balanced combination of procedure and understanding.

**Motion Math**  
 Zoom



**Hungry Fish**



**Wings**



### PRACTICE APPS

**Hands-on Math Ventura** <http://www.venturases.com/>



### PRACTICE APPS AND MORE

**Math Evolve**  
 For Android and IOS.



