

Charting the Userverse: The STEM Exchange Initiative

Introduction:

Kumar Garg,

Policy Analyst

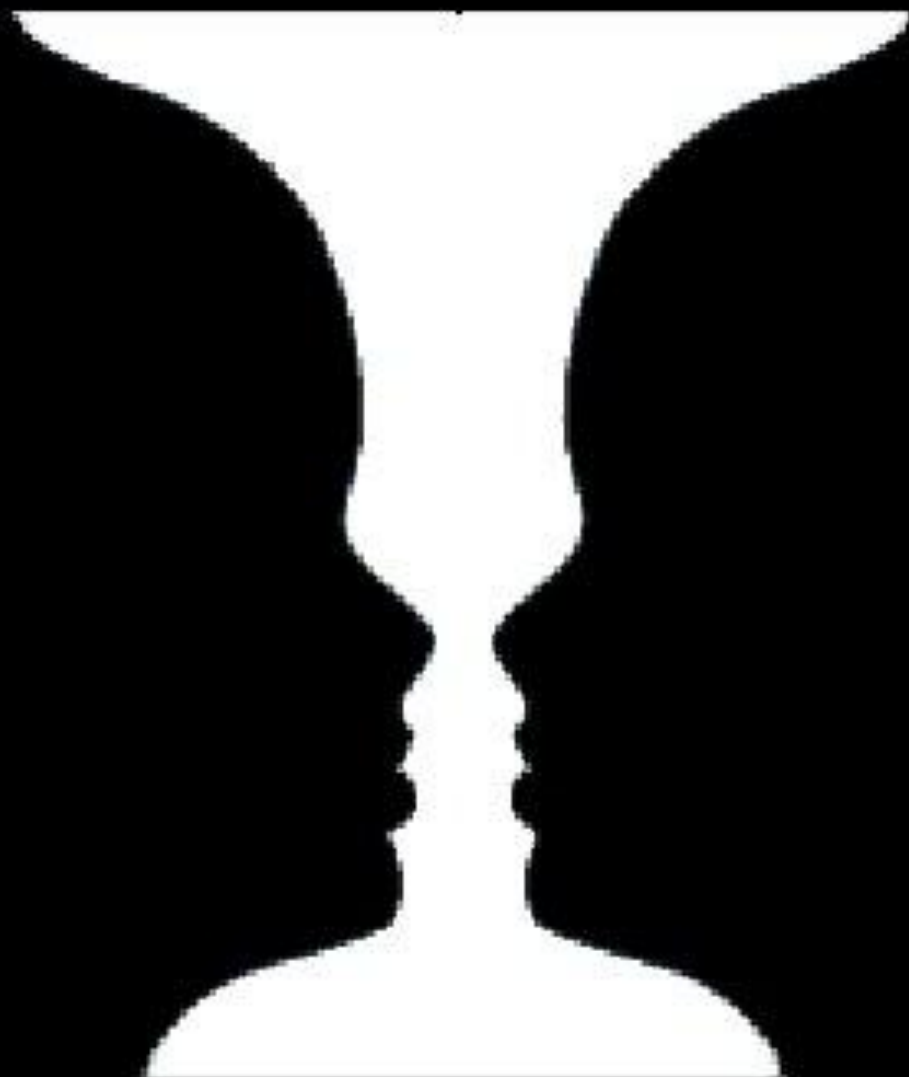
White House Office of Science and
Technology Policy

The STEM Exchange:

A Dissemination and Broader Impacts Initiative developed in cooperation with the White House Office of Science and Technology Policy

Broad Goals

- Enhancing the diffusion and access of NSDL resources to educational practitioner communities
- Aligning NSDL Resources to new Common Core standards
- Tapping practitioner knowledge and craft to add valuable context around cyberlearning resources
- Enhancing understanding about the adoption and impact of cyberlearning resources
- Developing models that will be of value to other federal agencies and other resource providers
- Embodying open source, open access, open resource practices



Educational Impact: We are missing most of the picture...

Discover – Select Use

Search
Browse

Link
Download

Reuse – Remix – Contextualize →

Share
Embed
Reauthor
Recommend
Favorite
Review
Tweet
Feed
Align
Adopt
Personalize
Customize
Bookmark
Mash Up
...

Paradata

New
Information
Profile Around
STEM Resources

focused, not on describing the resource itself, but on ***facilitating the diffusion of the resource into educational practice and explicating diffusion patterns*** as the resource is annotated, reviewed, downloaded, embedded, shared, accreted, modified, and updated.

Paradata Spectrum - Resource Utility

What peer actions help teachers learn about the utility of a resource for their own practices?



Annotational Refines descriptive metadata	Kinematic Illustrates diffusion through user actions	Pedagogical Refines educational context and utility
tagged described included in collection cataloged related to other materials	favorited shared downloaded viewed commented bookmarked tweeted retweeted subscribed contributed modified	>> in X context for Y audience, in support of Z learning goals, ... reviewed rated commented embedded aligned enhanced combined used implemented recommended personalized contextualized adopted customized mashed up republished

Stakeholder Engagement

Organizations participating in early discussions at varying levels include:

Advance Distributed Learning (DOD)

BetterLesson

Beyond Textbooks / Vail, AZ Unified
School District

California Dept of Ed / Brokers of
Expertise / CTEonline

Concord Consortium

Corporation for Public Broadcasting

Curriki

Discovery Education

Illuminate

ePals

FCC

George Lucas Educational Foundation

Georgia Department of Education

The Library of Congress

ISKME/ OERCommons

National Council of Teachers of
Mathematics

National Geographic Society

National Science Teachers Association

NYSci

Florida State University

PBS

Project Tomorrow

The Smithsonian

Southern Regional Education Board

NSDL Pathways – will contribute content,
pilot testing, and data analysis at
levels dependent on funding,
including: comPADRE, CLEAN, ChemEd

NSDL Projects Engagement

AAAS

AMSER

comPADRE

CLEAN

ChemEd DL

MatDL

MathForum

MathPath

MSP2

SERC

SMILE

Teachers' Domain

Original Models: A Look at Iconic Tech Prototypes

By Steven Lockart | August 11, 2010 | 4:45 pm | Wired September 2010



Photo: Dan Forbes

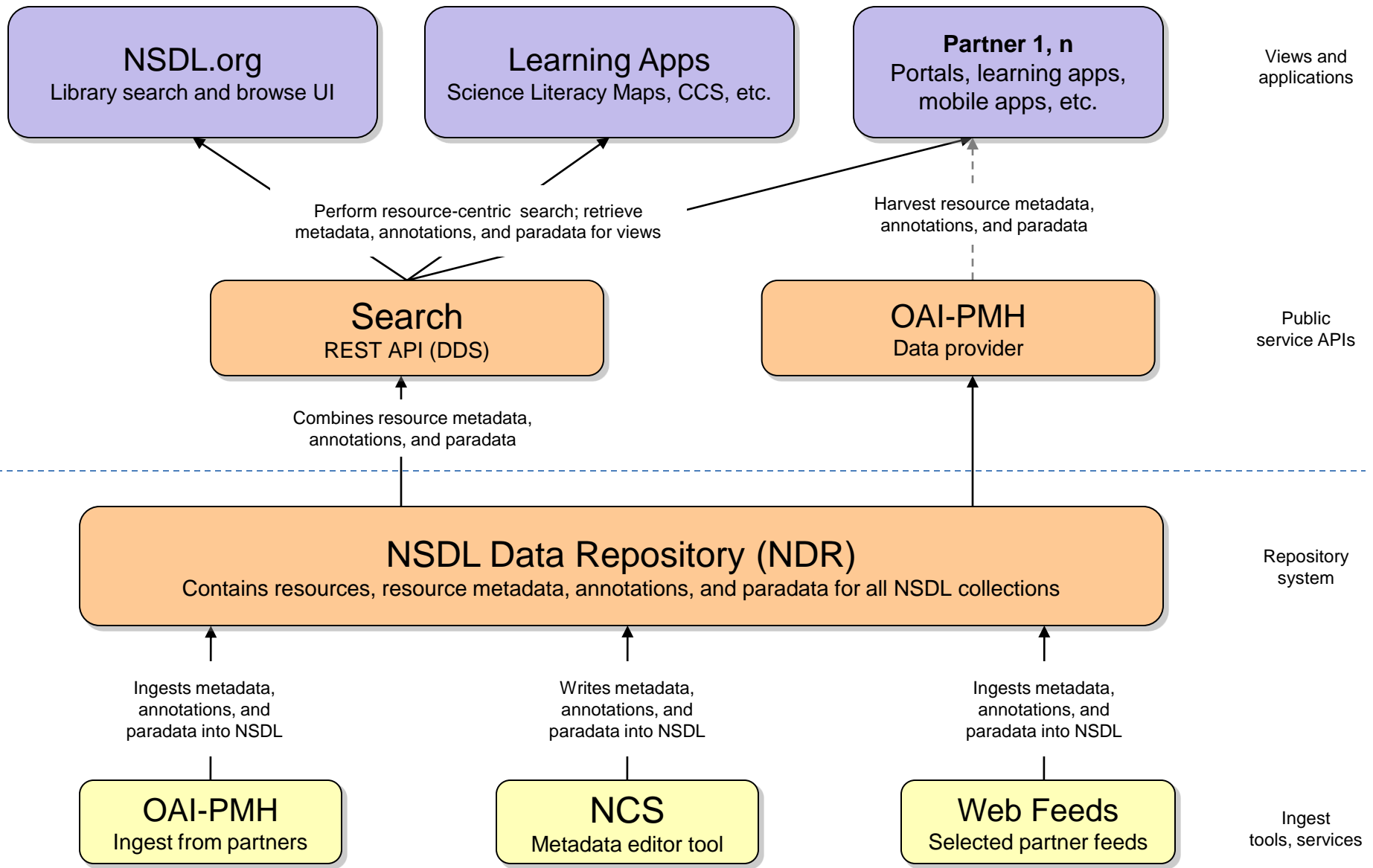
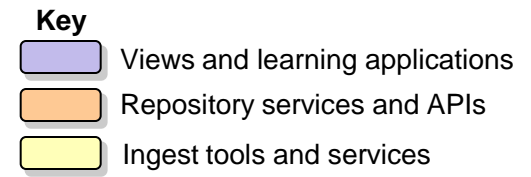
Apple I
1975

NSDL STEM Exchange Technical Overview

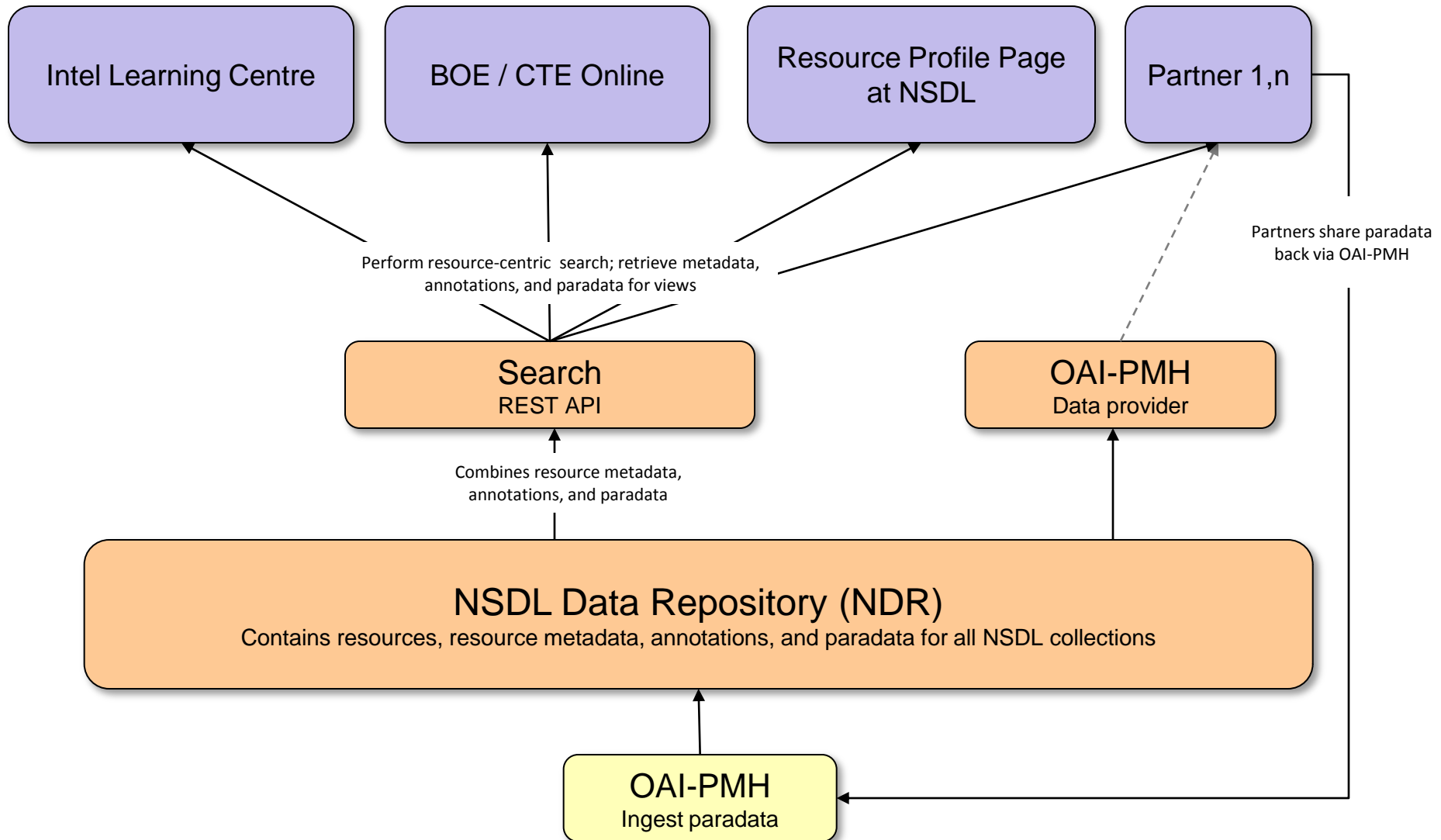
Getting Items into NSDL

- Ingest Services
 - OAI-PMH – Open Archives Initiative Protocol for Metadata Harvesting
 - Web Feeds, RSS ingest
- Tools
 - NCS – Out-of-the box tool for managing metadata collections in the NSDL
 - jOAI – Tool that enables existing systems and databases to provide metadata and paradata via OAI-PMH

NSDL Technical Platform



STEM Exchange



NSDL Handle Service

- Unique ID assigned to each object in the repository:
 - Resource
 - Resource metadata
 - Paradata
 - Annotation
 - Collection Metadata
- Handles are assigned on ingest
- APIs allow look-up by handle or partner ID

Search Service

- Search API – The Digital Discovery System (DDS)
 - Search over NSDL resources, annotations, and paradata
 - Embed resources and search directly into web sites and learning applications
 - Customize views for specific audiences and contexts
 - Integrate with JavaScript on the client side or a host of technologies and frameworks on the server side like Drupal
 - Examples in use:
 - NSDL.org; Curriculum Customization Service; Middle School Portal 2 Pathway; SMILE Pathway; DLESE Pathway; STEM exchange; NSDL Science Literacy Maps; DLESE Earth Science Literacy Maps; NCAR Library; Intel Educator Centre; NASA portals, others...

Search service client examples...

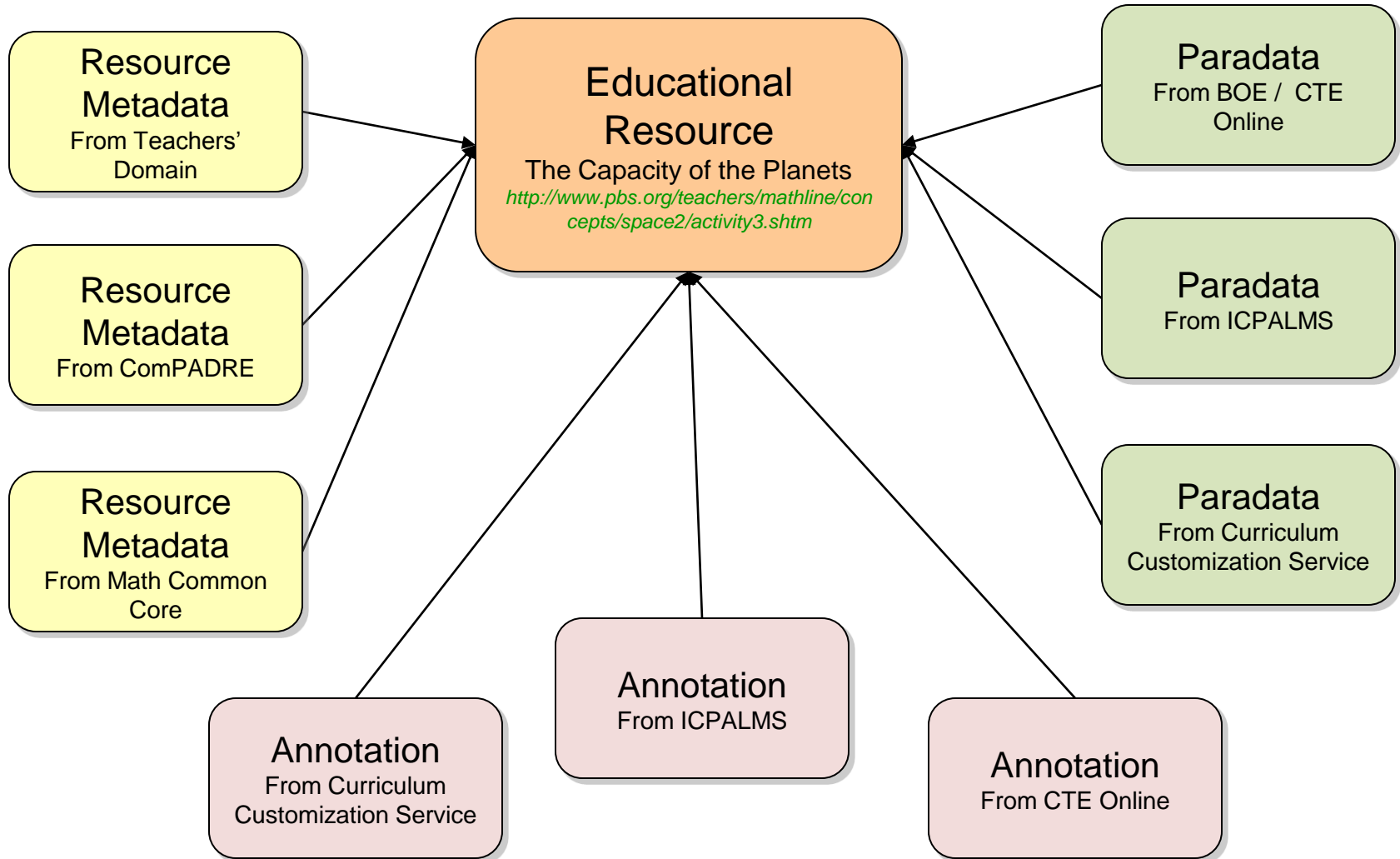
The image displays several overlapping browser windows illustrating search service clients. The windows include:

- NSDL.org**: Search results for 'graphs' showing 7382 results. The search term 'graphs' is entered in the search box. The results list includes 'Cordial Graph', 'Magic Graph', and 'Graceful Graphs'.
- Rocks and Landforms > Rock Cycle**: A page titled 'Investigating Rocks and Landforms' with a sub-section for 'Rocks and Landforms'. It includes 'Key Concepts' (Earth's Crust, Rocks by Region, Rock Cycle) and 'Rock Cycle' information.
- HowtoSmile.org**: A search results page for 'SMILE' with a search bar and navigation options.
- Earth Science Literacy Maps: The Physical Setting > Changes in the Earth's Surface**: A page with a search bar and navigation options. A 'Benchmark Details' window is open, showing information about earthquakes and ocean ridges. Callouts point to a diagram of plate tectonics, with one callout stating: 'Earthquakes often occur along the boundaries between colliding plates, and molten rock from below creates pressure that is...'. Another callout points to a specific part of the diagram, stating: '...ation, ing, station, and tion of rock to a continuing ple" in which amount of stays the same rms change.'
- MSP2 Middle School Portal 2 Math & Science Pathways**: A page titled 'Search the MSP2 Collection of Digital Resources' with a search bar and navigation options.

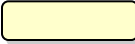


Resource-Centric Search

- REST Search Service
 - Request made with http
 - Response returns XML or JSON
- Each search result represents a single resource
- Each result returns:
 - Resource metadata from each partner collection that describes the resource
 - Paradata from each partner that describes the resource
 - Annotations from each partner that provides annotations
 - Collection metadata that describes each of the above sources

Resource-Centric Search Result: Model



Key

-  NSDL DC XML (nsdl_dc)
-  Comm Annotation XML (comm_anno)
-  Comm Paradata XML (comm_para) (proposed)

XML Samples

```
- <head>
  <id>oainsdl.org:ncs:MARCC-000-000-000-006</id>
  <xmlFormat>nsdl_dc</xmlFormat>
  <collection recordId="DC-NSDL-COLLECTION-000-000-000-003-112-016" key="ncs-NSDL-000-003-112-016">NSDL Math Common Core</collection>
  <fileLastModified>2010-09-03T22:19:24Z</fileLastModified>
</head>
- <metadata>
  - <nsdl_dc:nsdl_dc schemaVersion="1.02.020" xsi:schemaLocation="http://nsdl.org/schemas/nsdl_dc/nsdl_dc_v1.02 http://nsdl.org/schemas/nsdl_dc/nsdl_dc_v1.02">
    - <dc:identifier xsi:type="dct:URI">
      http://www.pbs.org/teachers/mathline/concepts/space2/
    </dc:identifier>
    <dc:title>The Capacity of the Planets</dc:title>
    - <dc:description>
      In this activity, students "demonstrate the ability to represent measurement and use geometry to solve problems about planets." This activity is the third in a series of activities called Math Space Odyssey and it asks students to calculate the capacity and area of planets. In addition, students convert numbers to scientific notation, calculate the distance between planets, and are asked to create and solve problems dealing with distance or capacity in the solar system. All materials are provided on a chart on this site, and the activity and answer keys are available as PDFs and printed, ready for classroom use.
    </dc:description>
    <dc:subject>Measurement</dc:subject>
    <dc:subject>Measurement</dc:subject>
    <dc:subject>Area</dc:subject>
    <dc:subject>Measurement</dc:subject>
```



```
- <relations>
  - <relation type="paradataProvidedBy" num="1">
    - <record>
      - <head>
        <id>CTE-PARA-211067</id>
        <xmlFormat>comm_para</xmlFormat>
        <collection recordId="COLLECT-SE-000-000-001-003" key="cteonline_para">CTE Online</collection>
        <fileLastModified>2010-10-30T01:50:22Z</fileLastModified>
      </head>
      - <metadata>
        - <commParadata>
          <recordId>CTE-PARA-211067</recordId>
          <title>Paradata for 'The Capacity of the Planets'</title>
          - <description>
            This record contains paradata for the resource 'The Capacity of the Planets'
          </description>
          <date created="2010-10-29"/>
          <paradataProvidedForId>oainsdl.org:ncs:MARCC-000-000-000-006</paradataProvidedForId>
          <paradataProvidedForName>The Capacity of the Planets</paradataProvidedForName>
        - <paradata>
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          <numFavorited>1</numFavorited>
          <numComments>0</numComments>
          <numFullAccesses>3</numFullAccesses>
          <numTimesWatched>0</numTimesWatched>
          <numEmbedsInCurriculum>0</numEmbedsInCurriculum>
          <numEmbedsInContent>0</numEmbedsInContent>
          <numEmbedsInUnknown>0</numEmbedsInUnknown>
          <numAddedToCollection>0</numAddedToCollection>
        </paradata>
      </commParadata>
    </metadata>
  </record>
</relation>
</relations>
```

Resource Profile Page

NSDL STEM Exchange Resource: The Capacity of the Planets

http://dls.ucar.edu/stem_exchange/resource/?id=oai:nsdl.org:ncs:MARCC-000-000-000-006

Google



STEM Exchange > The Capacity of the Planets


Resource usage data from CTE Online

Times Viewed: 36
Times Favorited: 1
Comments: 0
Full Accesses: 3
Times Watched: 0
Embedded in Curriculum: 0
Embedded in Content: 0
Embedded in Other: 0
Added to Collection: 0

STEM Exchange Summary

This box summarizes some of the activities surrounding this resource.

Times Viewed: 36
Times Favorited: 1
Times Embedded: 0
Times Rated: 0
Comments: 0
Full Accesses: 3
Times Watched: 0
Embedded in Curriculum: 0
Embedded in Content: 0
Embedded in Other: 0
Added to Collection: 0



PBS Teachers

Multimedia resources & professional development

Home Teacher Resources Professional Development PBS Teachers Connect

Mathline®

Activity 3: The Capacity of the Planets (Grades 8-12)

[Concepts Home](#) | [How Long is a Light Year?](#) | [How Much Do You Weigh In](#) | [More Math Concepts](#)

Objective:
The students will demonstrate the ability to represent numbers in scientific notation and solve problems about planets in the solar system.

NCTM Standards:

- Understand numbers, ways of representing numbers, relationships among numbers, and operations.
- Understand the meaning of operations and how they relate to each other.
- Use computational tools and strategies fluently and estimate appropriately.
- Analyze characteristics and properties of two- and three-dimensional geometric figures.
- Select and use different representational systems, including coordinates, graphs, tables, and other objects.

The Capacity of the Planets

<http://www.pbs.org/teachers/mathline/concepts/space2/activity3.shtml>

In this activity, students "demonstrate the ability to represent numbers in scientific notation and use geometry to solve problems about planets in the solar system." This is the third in a series of activities called Math Space Odyssey from PBS's Mathline, and it asks students to calculate the capacity and area of the planets in the Milky Way. In addition, students convert numbers to scientific notation, calculate the distance between planets, and are asked to create and solve their own problem dealing with distance or

Found in Collection(s)

NSDL Math Common Core
The NSDL Math Common Core collection provides quick and easy access to high-quality math resources that have been related to one or more standard statements within the Math Common Core. These resources are selected from the larger NSDL collection and other trusted providers, and organized by grade level and domain area.

Tags

*algebra - lessonplan **math** planets
school science scientific_notation sky
skyscience surface_area volume

Notes

- group activity which involves changing planets distances from the sun and planet diameters into scientific notation and then calculating and comparing volume and surface area of planets
- math and sky science links
- math planets



Cognoti Admin Control Panel

Common Modules:

[DASHBOARD](#) [GROUPS](#) [USER APPROVAL](#) [USER](#)

Common Admin Modules:

[HIBERNATE INFORMATION](#) [I18N](#) [JSP](#) [SYSTEM JOBS](#)

Admin Modules:

NSDL Import

Last Build Date:
Fri Oct 15 16:06:41 PDT 2010
SVN Version:
1825

NSDL Search/Import Tool

Search View Collection List Collections

Results:



NSDL Search/Import Tool

measurement tools
 Search View Collection List Collections

| START IMPORT |

Attribute Ownership To:

- Set Me as Owner
- Select one of your groups: NSDL Math Common Core ▼
- Enter name of user:
- Enter name of group:
- Share With Public
- Share Globally (Guests and Users)
-

Results:

Displaying 1 to 40 of 144 results

- [Measurement: What Is It?](http://mypages.iit.edu/~smile/ma9302.html) (http://mypages.iit.edu/~smile/ma9302.html)
- [Measurement - What Is It? \(SMILE\)](http://mathforum.org/library/view/8503.html) (http://mathforum.org/library/view/8503.html)
- [Inchworm Measurement](http://eduref.org/cgi-bin/printlessons.cgi/Virtual/Lessons/Mathematics/Measurement/MEA0203.html) (http://eduref.org/cgi-bin/printlessons.cgi/Virtual/Lessons/Mathematics/Measurement/MEA0203.html)
- [Skitter](http://www.caida.org/tools/measurement/skitter/) (http://www.caida.org/tools/measurement/skitter/)
- [Wacky Ruler](http://pbskids.org/cyberchase/games/measurement/) (http://pbskids.org/cyberchase/games/measurement/)
- [Measurement in Motion](http://mathforum.org/library/view/2411.html) (http://mathforum.org/library/view/2411.html)
- [Industryshack: online unit conversion tools](http://mathforum.org/library/view/68435.html) (http://mathforum.org/library/view/68435.html)
- [Webinar: Measurement that Supports Assessment for Learning November 13, 2007 T&L webinar](http://www.causeweb.org/webinar/teaching/2007-11/) (http://www.causeweb.org/webinar/teaching/2007-11/)
- [Fit by Design or Design to Fit](http://www.bced.gov.bc.ca/careers/aa/lessons/aom14.htm) (http://www.bced.gov.bc.ca/careers/aa/lessons/aom14.htm)
- [CoralReef](http://www.caida.org/tools/measurement/coralreef/) (http://www.caida.org/tools/measurement/coralreef/)
- [Activities that Really Measure Up](http://learningcenter.nsta.org/product_detail.aspx?id=10.2505/4/sc06_044_02_30) (http://learningcenter.nsta.org/product_detail.aspx?id=10.2505/4/sc06_044_02_30)
- [Quick take on geoboard geometry](http://msteacher.org/epubs/math/QuickTakes/geoBoard.aspx) (http://msteacher.org/epubs/math/QuickTakes/geoBoard.aspx)
- [Agilent Technologies' Educator's Corner](http://www.home.agilent.com/agilent/application.jspx?cc=US&lc=eng&ckey=1000000034:eps:igr&nid=-34945.0.00&id=1000000034:eps:igr) (http://www.home.agilent.com/agilent/application.jspx?cc=US&lc=eng&ckey=1000000034:eps:igr&nid=-34945.0.00&id=1000000034:eps:igr)
- [Agilent Technologies' Educator's Corner](http://www.home.agilent.com/agilent/application.jspx?cc=US&lc=eng&ckey=1000000034:eps:igr&nid=-34945.0.00&id=1000000034:eps:igr) (http://www.home.agilent.com/agilent/application.jspx?cc=US&lc=eng&ckey=1000000034:eps:igr&nid=-34945.0.00&id=1000000034:eps:igr)
- [Primary Science of Energy: Teacher Guide](http://www.need.org/needpdf/Primary%20Science%20of%20Energy%20Teacher%20Guide.pdf) (http://www.need.org/needpdf/Primary%20Science%20of%20Energy%20Teacher%20Guide.pdf)
- [Federal Interagency Sedimentation Project](http://fisp.wes.army.mil/) (http://fisp.wes.army.mil/)

CTEOnline

[WELCOME, STEVE](#) | [MESSAGES](#) | [NOTIFICATIONS \[1\]](#) | [LOGOUT](#) | [INFORMATION](#) | [CONTACT](#)

HOME
CURRICULUM
RESOURCES
TRAINING
CALENDAR
STANDARDS
GROUPS
PEOPLE
SU

ADD NEW GROUP | MY GROUPS | BROWSE GROUPS

Manage Dashboard

NSDL Math Common Core



[Manage this Group](#)
[Send Message to Group](#)
[Group Discussions](#)
[Membership Privacy Settings](#)
[Leave Group](#)

<http://staging.cteonline.org/qq/groups/nsdlmath>

[VIEW ALL](#)

Group Description

Our initial collection launch focuses on two critical mathematical concepts that build across grade levels: Fractions and Measurement. These themes tie together multiple domains as described in the Common Core documents.

Resource Usage Statistics

Resource Name	Views	Full Accesses	Favorited	Comments	Watched	Embedded in Curr
Are We There Yet?	4	2	0	2	0	0
The Capacity of the Planets	36	2	1	0	0	0
Simultaneous Linear Equations	2	1	1	0	0	1
Interpreting Proportional Relationships	2	1	1	0	0	1
Estimate and Measure with Chef Pierre	1	0	0	1	0	0
Practice with Similarity Proofs	1	0	1	0	0	1
Apple Pi	1	0	2	0	0	0
The Yo-Yo Problem: Solving Linear Equations	1	1	0	0	0	0
Word Problems: Simple Interest	1	1	0	0	0	0
Areas, Volumes, Surface Areas	0	0	1	0	0	0
Linear Equations	0	0	1	0	0	0

Export CSV

Shared Resources



[Estimate and Measure with Chef Pierre](#)
 Description: This interactive site demonstrates to students how to estimate and measure using nonstandard units. In this case, Chef Pierre ex...



[Are We There Yet?](#)
 Description: This resource presents problems involving distance, rate and time. The first challenge asks students to determine the number of ...



[Simultaneous Linear Equations](#)
 Description: This page presents simultaneous linear equations in three sections: Section 1 demonstrates the methods of addition and substitut...



[Interpreting Proportional Relationships](#)
 Description: This series of activities allows students to experiment to discover proportional relationships This activity has three objective...



[Practice with Similarity Proofs](#)
 Description: In this worksheet of eight questions, students practice their knowledge of similarity proofs. In the first four questions, stude...

[VIEW ALL](#)

Recent Discussions

There are no discussion posts for this group yet.

[VIEW ALL](#)

Comments

No Comments

POST COMMENT
Sort: Threaded : Descend

cte NSDL Math Common Core :: Groups :: ... cte NSDL Math Common Core :: Groups :: ... cte The Capacity of the Planets :: Res...

CTEOnline WELCOME, STEVE | MESSAGES | NOTIFICATIONS [1] | LOGOUT | INFORMATION | CONTACT

HOME CURRICULUM **RESOURCES** TRAINING CALENDAR STANDARDS GROUPS PEOPLE SU

ADD A RESOURCE | MY SUBMITTED RESOURCES | MY FAVORITE RESOURCES | ALL PUBLIC RESOURCES

The Capacity Of The Planets

PBS Teachers

Mathline®



Activity 3: The Capacity of the Planets (Grades 8-12)

Concepts Home | How Long is a Light Year? | How Much Do You Weigh in Space? | The Capacity of Planets | More Math Concepts

Objective:
The students will demonstrate the ability to represent numbers in scientific notation and use geometry to solve problems about planets in the solar system.

NCTM Standards:

- Understand numbers, ways of representing numbers, relationships among numbers, and number systems;
- Understand the meaning of operations and how they relate to each other;
- Use computational tools and strategies fluently and estimate appropriately;
- Analyze characteristics and properties of two- and three-dimensional geometric objects;
- Select and use different representational systems, including coordinate geometry and graph theory;
- Recognize the usefulness of transformations and symmetry in analyzing mathematical situations;
- Use visualization and spatial reasoning to solve problems both within and outside of mathematics.

 [Student Activity \(PDF File\)](#)
 [Answers \(PDF File\)](#)

The Capacity of the Planets

In this activity, students use information about three-dimensional figures to solve problems about the planets and the solar system. Also, students use length and proportional relationships to solve problems.

For this activity, students must use the chart of facts and a calculator. Students must use formulas for capacity (Volume = $4/3 \cdot \pi \cdot \text{radius}^3$) and area of a sphere (Area = $4 \cdot \pi \cdot \text{radius}^2$).

Students should be able to look at the information and create problems similar to those on the activity sheet, especially on the topic of geometry.


For this activity, use the chart of facts below, formulas for capacity and area, and a calculator.

PLANET	Approximate diameter (in miles)	Approximate distance from the Sun (in miles)

[Go to Site](#)

In this activity, students "demonstrate the ability to represent numbers in scientific notation and use geometry to solve problems about planets in the solar system." This is the third in a series of activities called Math Space Odyssey from PBS's Mathline... [More](#)

Comments POST COMMENT


 Added By: [NSDL Math Common Core](#)
10/15/2010


Last Update: 4 days ago


Original Source: [Public Broadcasting Service \(U.S.\)](#)


Favorited 1

Views: 30

FAVORITE 

WATCH 

EDIT THIS RESOURCE 

SHARE RESOURCE 

REPROCESS

RECOMMEND OR FLAG RESOURCE

Subjects, Grades, and Standards

Grade: 6 to 12

Subjects: Area & Volume, Measurement & Tools

Resource Pedagogy

Resource Type/Classification:
Teacher Materials

Tool for: Teachers

Tags/Keywords

- + Solutions, Measurements and Data Analysis - Olson
- + Chromosomes and the Human Genome - Olson
- + Mapping Central Dogma
- + Antibodies
- + Ouchterlony Test: Antibody Simulation
- Understanding Relative Sizes
 - + Sort Cards from Largest to Smallest
 - + Review of Terminology
 - + Computer Work
 - + Documentation
 - + Represent Numbers in Scientific Notation
- + Biotfuel Enzyme Kit
- + Plant Tissue Culture
- + Biotechnology Components and Fields
- + Laboratory Techniques and Safety
- + Product Design, Procedures, Licensure and Regulations
- + Ethical, Moral, Legal, and Cultural Issues

Comments POST COMMENT

Sort: Threaded : Descend ▼
 No Comments

California Academic Content Standards (Reinforced)

- ELA.9-10.R.CAGT.2.4 [Synthesize the content from several sources or works by a single author dealing...](#) 3
- M.7.NS.1.1 [Read, write, and compare rational numbers in scientific notation \(positive and n...](#) 1

Objectives and Goals

Gain greater understanding of cellular structures

Activities in this Lesson



- [Represent Numbers in Scientific Notation](#) - Hooks / Set

In this activity, students demonstrate the ability to represent numbers in scientific notation and use geometry to solve problems about planets in the solar system. It asks students to calculate the capacity and area of the planets in the Milky Way. In addition, students convert numbers to scientific notation, calculate the distance between planets, and are asked to create and solve their own problem dealing with distance or capacity in the solar system.

- The Capacity of Planets [[Go to Site](#)]
 In this activity, students demonstrate the ability to represent numbers in scientific notation and use geometry to solve problems about planets in the solar system." This is the third in a series of activities called Math Space Odyssey from PBS's Mathline, and it asks students to calculate the capacity and area of the planets in the Milky Way. In addition, students convert numbers to scientific notation, calculate the distance between planets, and are asked to create and solve their own problem dealing with distance or capacity in the solar system. All relevant data needed is provided on a chart on this site, and the activity and answers can be downloaded as PDFs and printed, ready for classroom use.

- [Sort Cards from Largest to Smallest](#) - Hooks / Set

Give each student a set of cards (see attached). Ask them to put the cards in order by size. Tell them that you will award a prize to the student who gets the correct answer first. You can offer extra credit points or whatever you choose. If no student guesses correctly within ten minutes, you can award the student who is closest.

Coffee Bean, Grain of Salt, Amoeba Proteus, Human Egg Cell, Paramecium, Skin Cell, Sperm Cell, Red Blood Cell, Baker's Yeast, Mitochondria, E. Coli Bacterium, Influenza Virus, Ribosome, Antibody, Phospholipid, Adenine, Glucose, Carbon Atom

- Relative Sizes Cards [[Download](#)]
 Print out one set per student. Cut them out and paperclip each set of cards.
- [Review of Terminology](#) - Lecture

Many of the items on the cards should be somewhat familiar to the students. However, most students will not remember every term. Use the attached powerpoint presentation to review and answer any questions.

Other interesting things to include in your lecture...

Compare Small Objects to Larger Objects

If a carbon atom = 7 nives, then

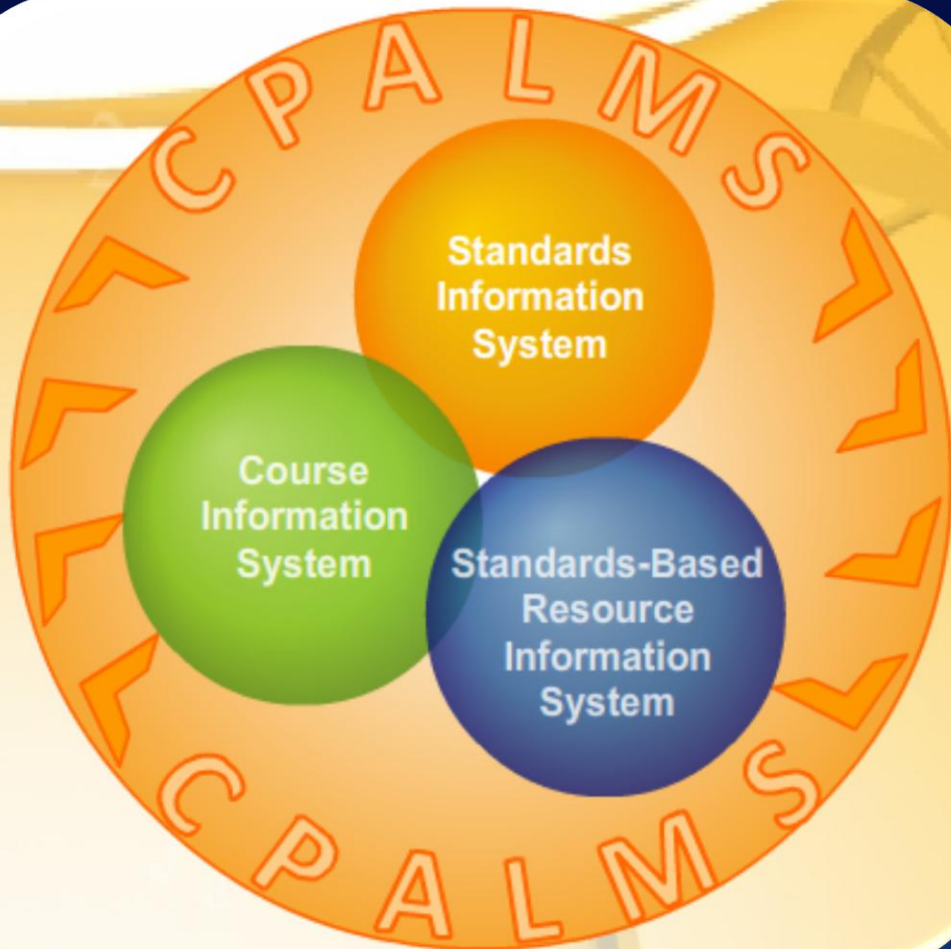
iCPALMS



- ▣ A new NSDL Pathway project
- ▣ To create a portal for standards-based instruction

Integration with CPALMS as a model

www.cpalms.org



- Standards information system provides all information related to the curriculum standards and serves as the core of the entire system
- Course information system provides all the course information related to all the courses taught in PreK-12 including the aligned benchmarks
- Resource information system provides standards-based tools to create resources, review resources, and share resources. As of today, 700+ reviewed and approved resources are included in this collection

Standards Information System

Official website for Florida's Next Generation Sunshine State Standards (NGSSS)

(Common Core coming soon)

- ✓ Benchmark-specific information
- ✓ Related Aligned Resources
- ✓ Related Courses
- ✓ Related Access Points when applicable
- ✓ FCAT specifications and example items when applicable
- ✓ Remarks/Examples

The screenshot displays the Florida Standards Information System interface. At the top, there are navigation tabs: HOMEPAGE (Back to Home), STANDARDS Information System, COURSE Information System, RESOURCE Information System, DOWNLOAD Reports/Documents, and CPALMS All About It. Below these are sub-tabs: Standards, Access Points, Export and Print Documents, and Overview. The main content area is titled "Benchmark: MA.K.A.1.1" and includes a "Related Tips/Tutorials" section with a "Collapse All" link. The "GENERAL INFORMATION" section provides the following details:

- Benchmark Number:** MA.K.A.1.1
- Benchmark Description:** Represent quantities with numbers up to 20, verbally, in writing, and with manipulatives.
- Subject Area:** Mathematics
- Grade Level:** K
- Body of Knowledge:** Algebra
- Big Idea:** [NG-IDEA.1](#) - Represent, compare, and order whole number s and ten and separate sets.
- Date Adopted or Revised:** 05/07
- Date of Last Rating:** 06/07
- Cognitive Complexity:** Moderate - [What does this mean?](#)
- Status:** State Board Approved
- Remarks/Examples:** Example: Have 20 plastic cups with numbers 1 through 20 on them. Have each student fill one cup with number of bears written on the cup.

Below the general information are sections for "RELATED RESOURCES (16)", "RELATED COURSES (2)", and "RELATED ACCESS POINTS (4)".

The "OPTIONS" section includes: Direct Link to Page, Share on (Facebook, Twitter, LinkedIn, YouTube, Print), Export to Microsoft Excel, Export to Microsoft Word, and Printer Friendly View.

The "MY NOTES" section has a "My Notes" header and a sub-header: "You can insert personal notes on this page. These notes will be only visible by you. Click on the 'Add / Edit' to get started." There is an "Add / Edit" link.

At the bottom, there are links for Home, Login To My Account, and Register For An Account. A footer navigation bar includes: HOMEPAGE (Back to Home), STANDARDS Information System, COURSE Information System, RESOURCE Information System, DOWNLOAD Reports/Documents, CPALMS All About It, and SUPPORT Resources/Feedback. The footer also contains links for Welcome to CPALMS, Browse/Search Standards, Browse/Search Course, Summary, Browse/Search, Download and Print Reports, Project CPALMS, and Demonstrate Suggestions.

Course Information System

Official website for Florida's Course Directory

- ✓ Course-specific information
- ✓ Related Benchmarks
- ✓ Related Access Points
- ✓ Related Certifications

The screenshot displays the Florida Course Information System website. At the top, there are navigation tabs: HOMEPAGE (Back to Home), STANDARDS (Information System), COURSE (Information System), RESOURCE (Information System), DOWNLOAD (Reports/Documents), CPALMS (All About It), and SUPPORT (Resources/Feedback). Below these is a header with 'Course Descriptions' and 'Overview' buttons. The main content area is titled 'Course: Algebra 1-1200310' and includes a 'Related Tips/Tutorials' link. A 'GENERAL INFORMATION' section provides the following details:

Course Number:	1200310
Course Path:	Section: Basic and Adult Education > Grade Group: Secondary Grades 9-12 > Subject: Mathematics > SubSubject: Algebra >
Course Title:	Algebra 1
Course Section:	Basic and Adult Education
Abbreviated Title:	Algebra 1
Number of Credits:	One credit (1)
Course Length:	Year
Course Type:	Core
Course Level:	2
Course Status:	State Board Approved

Below the general information is an 'ASSESSMENT' section, which is expanded to show 'RELATED BENCHMARKS (40)'. The first four benchmarks listed are:

- LA.910.1.6.1.** The student will use new vocabulary that is introduced and taught directly.
Depth of Knowledge: N/A | Date Adopted or Revised: 01/07
This benchmark belongs to: [Vocabulary Development](#)
[More Information >](#)
- LA.910.1.6.2.** The student will listen to, read, and discuss familiar and conceptually challenging text.
Depth of Knowledge: N/A | Date Adopted or Revised: 01/07
This benchmark belongs to: [Vocabulary Development](#)
[More Information >](#)
- LA.910.1.6.5.** The student will relate new vocabulary to familiar words.
Depth of Knowledge: N/A | Date Adopted or Revised: 01/07
This benchmark belongs to: [Vocabulary Development](#)
[More Information >](#)
- LA.910.3.1.3.** The student will prewrite by using organizational strategies and tools (e.g., technology, spreadsheet, outline, chart, table, graph, Venn Diagram, web, story map, and paragraph) to develop a personal organizational style.
Depth of Knowledge: N/A | Date Adopted or Revised: 01/07
This benchmark belongs to: [Prewriting](#)
[More Information >](#)

Additional benchmarks shown include MA.912.A.1.8 (Real and Complex Number Systems), MA.912.A.2.3 (Relations and Functions), and MA.912.A.2.4 (Relations and Functions).

Resource Information System

- ✓ Delivers vetted math and science resources related to benchmarks, access points, and big ideas
- ✓ Statewide collaborative effort
- ✓ 2000+ contributed; 700+ reviewed and approved
- ✓ Provide standards-based resource authoring tools to create and share resources

Benchmark: MA.K.A.1.1

GENERAL INFORMATION

Benchmark Number: MA.K.A.1.1

Benchmark Description: Represent quantities with numbers up to 20, verbally, in writing, and with manipulatives.

Subject Area: Mathematics

Grade Level: K

Body of Knowledge: Algebra

Big Idea: [BIG IDEA 1](#): Represent, compare, and order whole number's and join and separate sets.

Date Adopted or Revised: 09/07

Date of Last Rating: 06/07

Cognitive Complexity: Moderate

Status: Date Board Approved

Remarks/Examples: Example: Have 20 plastic cups with numbers 1 through 20 on them. Have each student fill one cup with number

RELATED RESOURCES (14)

Excellent Benchmark Tie (9)

- Number Recognition, Matching, and Writing**

This lesson allows students to match numbers with the corresponding number of objects and to write that number.

Counting

With this game, students can match numbers, shapes, fractions, or multiplicative facts to equivalent representations. The game can be used to practice facts by using the clear pane mode, or for an additional challenge, play the game with the activities.

How Many Buttons?

In this lesson, students review classification, make sets of a given number, explore relationships between numbers, and find numbers that are one more and one less than a given number. They apply their knowledge of classification as they play a game.

Five Frames

The five frames that can be played with this virtual manipulatives help to develop counting and addition skills using frames of 5.

And the Number is...

The use of music and the manipulation of numerical cards and counting objects, the children learn to count and read numbers 1-10. Through the use of music and the manipulation of numerical cards and counting objects, the children learn to count and read numbers 1-10.

Let's Count to 20

Students make groups of 10 to 20 objects, covered number names to the group, compare and decompose numbers, and use numbers to record the size of a group. Visual, auditory, and kinesthetic activities are included in each lesson.

Resource Information System

2021

Resources have been created/submitted to CPALMS

Resources - Top Contributing Districts

District	Percentage
Orange	8.5%
Orange	8.5%
Orange	8.5%
Orange	8.5%
Orange	8.5%
Orange	8.5%
Orange	8.5%
Orange	8.5%
Orange	8.5%
Orange	8.5%

Top 10 Contributors

- Susan Corwell (FCR-STEM)
- MFA5 F512 (FCR-STEM)
- Virginia Pickett (Dava)
- Joan Walker (Orange)
- Angela Fortine (Okaloosa)
- Jennifer Reser (Heartland Ed. Center)
- Donna Poniatowski (Seminoles)
- Danielle Sheridan (Orange)
- Adam Br...

Resource Preview

GENERAL INFORMATION

URL: <https://www.ed.gov/...>

Title: Number Recognition, Matching, and Writing

Resource Description: This lesson allows students to match numbers with the corresponding number of objects and to write that number.

Instructional Component Type(s): Lesson Plan

Intended Audience: Educators

RELATED BENCHMARKS (1)

- MA.K.A.1.1**: Represent quantities with numbers up to 20, verbally, in writing, and with manipulatives.

PEDAGOGY

Key: Mathematics

Level(s): K

Mode of Instruction: Direct Instruction

Instructional Time: 2 Hour(s)

Ac Remarks: [Back reference](#): Anne's Counting Book by Maura Ann (1975)
Note: You need to get priority of stickers, stamps, and/or coloring utensils for extension activity.

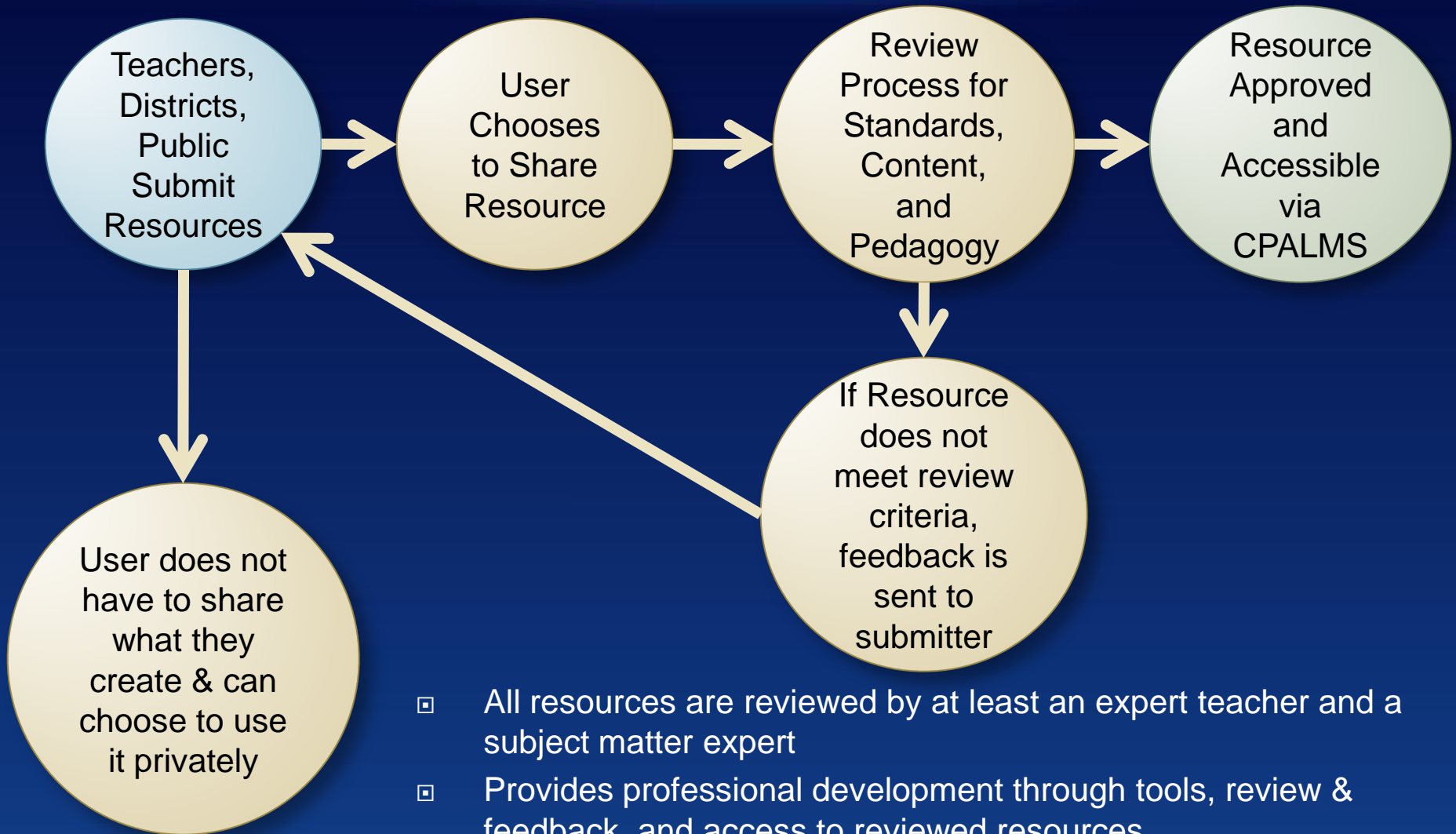
SOURCE & ACCESS INFORMATION

OPTIONS: Direct Link to Page, Share on Facebook, Export to Microsoft Excel, Export to Microsoft Word, Printer Friendly View

MY NOTES: You can insert personal notes on this page. These notes will be only visible by you. Click on the "Add / Edit" to get started.

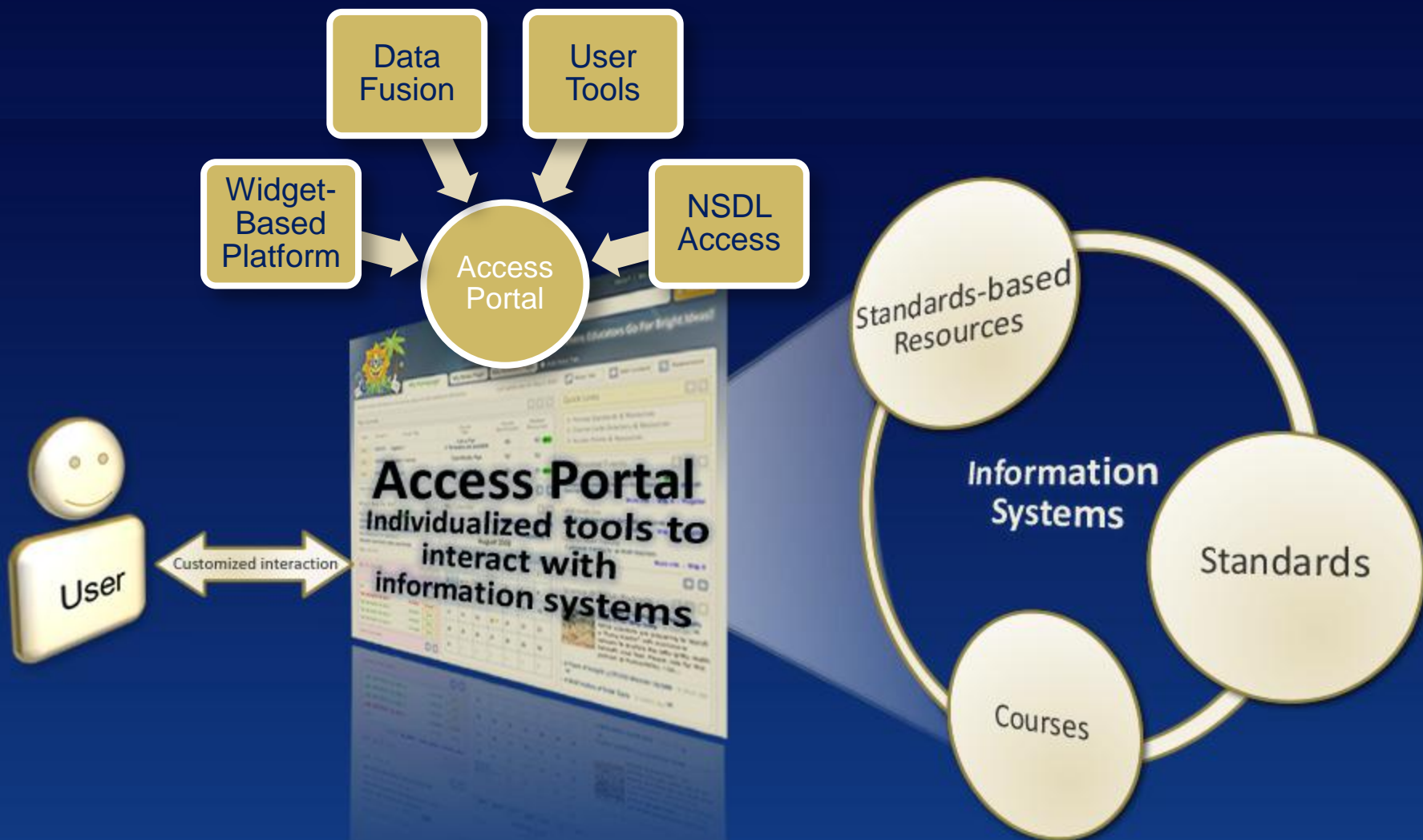
This lesson plan is best for the beginning of the teaching of the related benchmark.

Resources Information System – Review Process



- ▣ All resources are reviewed by at least an expert teacher and a subject matter expert
- ▣ Provides professional development through tools, review & feedback, and access to reviewed resources
- ▣ Enables and encourages collaboration and sharing

iCPALMS Overview – in development





Where Educators Go For Bright Ideas!

My Homepage

My News Page

My Hobbies Page

+ Add New Tab

This tab includes information on my courses, news and some additional information.

Last update was on: Aug 5, 2010

Share Tab

+ Add Content

Appearance

My Planner

Display **Active**

+ Add Class

Click on a class name to edit its settings. Click on an icon to open the C-Map or C-Schedule.

Class Description	C-Map	C-Schedule	Edit	Delete
Period 2 Algebra » Course#: 1200310 - Algebra 1 Benchmarks: 5 / 40 Resources: 5 / 5	 in progress	 completed	Edit	Delete

Quick Links

1. Florida Standards & Resources
2. Course Code Directory & Resources
3. Access Points & Resources

Professional Development

- PROMISE Session for Math Teachers** NEW
A training session on the new Math Standards for all Math teachers in my county.
[More info](#) - [Map it](#) - [Register](#)
- DOE Math Day**
For all Math teachers in the State of Florida.
[More info](#) - [Map it](#) - [Register](#)
- District Math Training**
Curriculum training for all Math teachers.
[More info](#) - [Map it](#)

What's New For Me?

- New Lesson Plan for Algebra 1** NEW
Lesson plan on quadratic equations.
[click here to review it and add it to your course.](#)
- New Resource For Algebra 2**
Interactive worksheet to factor polynomials.

Page 1 out of 10

My Calendar

Display: [Calendar View](#) - [Event List](#)

<< July Today September >>

August

Sun	Mon	Tue	Wed	Thur	Fri	Sat
27	28	29	30	31	1	2
3	4 ■	5	6	7	8	9
10	11	12	13 ■	14	15	16
17	18	19	20 ■	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

My To Do List

Display: [All Tasks](#) - [Open Tasks](#) - [Closed Tasks](#)

Task	Due on	Status
Task description for task 1	1/1/2009	Closed
Task description for task 2	1/5/2009	Open
Task description for task 3	1/8/2009	Open
Task description for task 4	1/15/2009	Open

I have 4 open tasks

Science @ NASA: Podcasts



The Realm of Earthworms: NASA Gets Down to the Nitty-Gritty - 2 days ago

NASA scientists are preparing to launch a "flying tractor" with microwave sensors to explore the nitty-gritty realm beneath your feet. Please vote for this podcast at PodcastAlley! Ge...

- A Flash of Insight: LCROSS Mission Update** - 6 days ago
- A Brief History of Solar Sails** - 2 weeks ago

iCPALMS: Curriculum Mapping Tool

Basic Information

Pedagogy

C-MAP

Click on the C-Map timeline to add an item. We recommend you fill your map in the following order: Topics, Benchmarks, and then Resources. This will allow CPALMS to recommend smart related choices.

C-MAP TimeLine

Changes done to the CMAP are instantaneous

Select a time interval to go to that section. Topic: Grading Period: Session: Date:

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Topics	Real and Complex Number Systems										Relations and Functions			
											Linear Equations and Inequalities			
Benchmarks	MA.912.D.7.1			MA.912.D.7.2		MA.912.A.2.4			MA.912.A.2.3			MA.912.A.10.3		
Resources/References	Distributing and Factoring Using Area			Scaling the Pyramids			Equations of Attack							
Session Notes	Handout materials			National Debt and Wars										

Scaling the Pyramids
<http://www.pbs.org/wgbh/nova/pyramid/geometry/index.html>
 ICT: Lesson Plan
 BenchmarkTie: Good
 This web page features activities that compare the Great Pyramid to such modern structures as the Statue of Liberty and the Eiffel Tower. In the first activity, students use a template to construct a scale model of the Great Pyramid. They must find the scale heights for the tallest building in their neighborhood or for their height. In the remaining activity, students are given the dimensions for two other pyramids and challenged to create...

Usage Information:
 Times Viewed: 15 Times User Experiences: 5
 Favorited: 3 Times Embedded: 2 Average Rating: 8.5 out of 10

PREVIOUS STEP NEXT STEP

C-Map Legend

Grading Period Separator Topic Benchmark Resource Linked To A Benchmark Private Resource

Benchmark Progression Mapping Tool

K-5 Benchmark Progression Map

→ Map Legend/Filter → About this Progression Map → Related Tips/Tutorials

MA.4.A.2.3
Relate equivalent fractions and decimals with and without models, including locations on a number line....
[View Information](#)

MA.4.A.6.5
Relate halves, fourths, tenths, and hundredths to decimals and....
[View Information](#)

MA.4.G.5.3
Identify and build a three-dimensional object from a two-dimensional representation of that object.
[View Information](#)

MA.4.A.2.4

MA.5.G.3.2
Describe, define, and determine surface area and volume of prisms by using appropriate units and...
[View Information](#)

MA.5.G.5.4
Derive and apply formulas for the areas of parallelograms, triangles, and trapezoids, and the area of a...
[View Information](#)

MA.5.G.3.1
Analyze and compare properties of two-dimensional figures and three-dimensional solids (polyhedra), including...
[View Information](#)

MA.5.A.6.3
Describe real-world situations using positive and negative numbers....
[View Information](#)

Detailed Information

MA.4.G.5.3
Identify and build a three-dimensional object from a two-dimensional representation of that object and vice versa.
Depth Of Knowledge: Moderate
Date Adopted or Revised: 09/07
Subject Area: Mathematics
Grade Level: 4
Body of Knowledge: Geometry
Supporting Idea: Geometry and Measurement
- Geometry and Measurement
[Related Instructional Resources](#) [More Information](#)

RELATED RESOURCES (4)

Good Benchmark Tie (4)	Resource Type(s)
→ Creating a 3-Dimensional Object from 2-Dimensional Representations Students explore drawing the front-right-top view when given a 3-dimensional figure built from cubes and explore building a 3-dimensional figure when given the front-right-top view. The lesson is the third of six lessons in a... read more	Virtual Manipulative Teaching Idea
→ Dynamic Paper (tool to print graph paper, number lines and grids, shapes, spinners, nets, tessellations) Create a set of pattern blocks, a pentagonal pyramid, a number line from -18 to 32 by 5's, grids, and more with the Dynamic Paper tool. Place the images you want, then export it as a PDF activity sheet for your students or as a JPEG... read more	Educational Software / Tool
→ Grid Paper (small) Grid (approximately 6mm) paper template 25x33 for printout	Educational Software / Tool
→ Grid Paper (large) Grid Paper template with large grid (slightly less than 1/2 inch) for printing	Educational Software / Tool

TEST ITEM SPECIFICATIONS

SAMPLE TEST ITEMS (1)

RELATED COURSES (2)


RELATED ACCESS POINTS (2)

OPTIONS



Zoom Out Zoom In

125%

Resource Preview Page

 Resource Preview [Collapse All](#)

GENERAL INFORMATION

URL:	http://www.pbs.org/wgbh/nova/pyramid/geometry/index.html	Usage Information: Times Viewed: 15 Times Favorited: 3 Times Embedded: 2 Times Rated: 0 Comments: 1 Full Accesses: 2 Times Watched: 0 Embedded in Curriculum: 1 Embedded in Content: 0 Embedded in Other: 0 Added to Collection: 0 Average Rating: 8.5 out of 10 User Experience and Feedback: 5
Title:	Scaling the Pyramids  	
Resource Description:	This web page features activities that compare the Great Pyramid to such modern structures as the Statue of Liberty and the Eiffel Tower. In the first activity, students use a template to construct a scale model of the Great Pyramid. They must find the scale heights for the tallest building in their neighborhood or for their height. In the remaining activity, students are given the dimensions for two other pyramids and challenged to create models.	
Instructional Component Type(s):	Lesson Plan	
Keywords:	Geometry, plane geometry, pyramids, scale, solid geometry	
Intended Audience:	Educators , Students	
Suggested Technology:	Internet Connection , Computer Media Player	

RELATED BENCHMARKS (1)







RELATED ACCESS POINTS (1)


PEDAGOGY

SOURCE & ACCESS INFORMATION

* Please note that examples of resources are not intended as complete curriculum.

[Click here to send us your feedback on this resource »](#)

OPTIONS
 Direct Link to Page
<http://www.floridastandards.org/R/>
 Share on

 Export to Microsoft Excel
 Export to Microsoft Word
 Printer Friendly View

MY NOTES
 **My Notes**
You can add personal notes on this page and they will be only visible by you. Click on the "Add/Edit" to get started. (Login is required) [+ Add / Edit](#)

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STEM Exchange Integration: Benefits

Use of Paradata

- ▣ Display paradata on resource selection or preview pages
- ▣ Prioritize the review of highly favorited resources, highly rated resources or a combination of both through the review process
- ▣ Report the impact of a resource back to the author of that resource

Contribution of Paradata

- ▣ Feedback on resources after the teacher uses the resource in the classroom
- ▣ Resource feedback based on classroom profile
- ▣ Contribute other paradata information: views, embedded, downloaded, watched, etc...