MOVING FORWARD WITH TECHNOLOGY Webinar Series

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Differentiated Instruction Using Technology

November 29, 2007

Judith Zorfass, EDC

Jenna Wasson, CAST

Goals of the Call

- Learn about Differentiated Instruction (DI)
- Collaborate to plan
- Learn about resources to support next steps

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Agenda

- Introductions
- Definition and Dimensions
- Key Practices using Technology
- Planning for Differentiating Instruction
- Reflection
- Next Steps
- Additional Resources

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Introductions

- Meet Judy and Jenna

- Who are you?

Definition of DI

By differentiating instruction, we mean the planning and delivery of classroom instruction that considers the varied levels of readiness, learning needs, and interests of each student. Teachers can do this most effectively by using a range of technology tools to engage learners at varying levels of readiness in multiple ways and by offering students options for demonstrating their understanding and mastery of the material.

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Dimensions of DI

- Three teacher-dependent dimensions
  (1) Content, (2) Process, (3) Products

- Three student-dependent dimensions
  (1) Interest, (2) Profile, and (3) Readiness

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Teacher-dependent Ways to Differentiate

By Content	Different levels of reading or resource materials, reading buddies, small group instruction, curriculum compacting, multi-level computer programs and Web Quests, tape-recorded materials, etc.
By Process	Activity choice boards, tiered activities, multi-level learning center tasks, similar readiness groups, choice in group work, varied journal prompts, mixed readiness groups with targeted roles for students, etc.
By Products	Tiered products, students choose mode of presentation to demonstrate learning, independent study, varied rubrics, mentorships, interest-based investigations

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Student-dependent Ways to Differentiate

By Interests	Options in content, topic, or theme, options in the tools needed for production, options in methods for engagement
By Profile	Consideration of gender, culture, learning styles, strengths, and weaknesses
By Readiness	Identification of background knowledge/gaps in learning, options in amount of direct instruction, options in amount of practice, options in pace of instruction, options in complexity activities, options in level of analysis/exploration of a topic

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Key Practices

- Embrace student differences
- Use assessment data to guide instruction
- Use choice to engage and motivate
- Offer flexible groupings
- Expect a variety of products to demonstrate learning

Embrace Student Differences

- Provide assistive and accessible tools
- Encourage students to create customized tools

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Technology Resources

TechMatrix 	Search by subject, learning support, feature and/or product list in order to identify tools for your students and your setting. Customize your matrix results, and share your search with colleagues. http://www.techmatrix.org/
Backpack 	Make pages with to-do lists, notes, files, and images. Also features a Calendar and Reminders that can be sent via email or to your cell phone at predefined times. http://www.backpackit.com/.
Word2Word Language Resources	Online dictionaries in students' native languages help to build vocabulary and background knowledge. Word2Word is a syndication of multiple language dictionaries. www.word2word.com

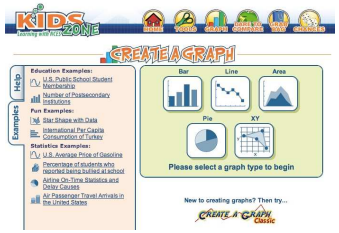
Use Assessment Data to Guide Instruction

- Employ progress monitoring and diagnostic tools
- Facilitate students in tracking their own progress
- Interpret data to guide your future instruction

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Technology Resources

Student Progress Monitoring studentprogress.org	National Center on Student Progress Monitoring provides you with information on progress monitoring tools to track and to chart student progress over time. See the list of reviewed tools at http://www.studentprogress.org/
Online Grading engrade www.engrade.com	Allows teachers to create online grade, attendance, or assignment books. Parents and students can see grades online, homework calendars, and progress reports. Free! http://www.engrade.com
Graphing 	Let the students do the tracking! Teach young children how at http://nces.ed.gov/nceskids/createagraph/

Use Choice to Engage and Motivate

- Provide an array of tools that captivate students' interest

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Technology Resources

Podcasts 	Search from among thousands of podcasts at the Apple store. Browse by category, review descriptive summaries, and read ratings and reviews. http://www.apple.com/itunes/store/podcasts.html
Webcams 	"National Geographic: WildCam Africa" gives your students an up-close look at wildlife gathering at Pete's Pond in Botswana. www.nationalgeographic.com/ngm/
Discovery EDUCATION unitedstreaming	Gain access to Discovery Education's rich collection of more than 50,000 video segments from among 5,000 full-length educational videos from Discovery School and other award-winning producers. http://www.unitedstreaming.com/index.cfm

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Offer Flexible Groupings

- Mix whole class orientations with small group and peer tasks
- Collaborate with groupings outside of the classroom

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Technology Resources

Online projects ROCK our World	Rock Our World is a site for music making with global collaborations that also involve families. http://www.rockourworld.org/
Virtual field trips cable in the classroom Kids. Cable. Learning.	Take your students on Virtual Field Trips from NASA, Discovery and the Weather Channel will give your students unique experiences. http://www.ciconline.org/windward
Handhelds 	Make the most out of handhelds in the classroom! Learninginhand.com is an educator's resource for using handheld computing in schools. http://learninginhand.com/

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Expect a Variety of Products

- Utilize tools that allow students to express their creativity

- Encourage interaction and participation

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Technology Resources

Blogs & wikis 	Blogger Learn what a blog is and how to create your own in three easy steps at www.blogger.com. pbwiki Get an ad-free wiki started with pre-made templates, free videos, and lots of help. http://pbwiki.com/
Presentation software 	Add voice to presentations, pictures, or text with VoiceThread. www.voicethread.com
CENTER for DIGITAL STORY TELLING	Use digital stories to motivate students to share their stories in a unique and creative way. Digital stories can be used as alternatives for projects, summaries, and presentations. http://www.storycenter.org/

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Planner

	Readiness	*Profile*	*Interests*
Content			
Process			
Products			

Collaborative Planning #1

Bio-Cube

http://readwritethink.org/materials/bio_cube/


Edit View Favorites Tools Help
Cut Ctrl+X
Copy Ctrl+C
Paste Ctrl+V
Select All Ctrl+A
Find (on This Page)... Ctrl+F
Search
Favorites
rials/bio_cube/
Go
BIO CUBE
Fill in the requested information in the cube.
Click on a number to rotate the cube.
1 2 3
4 5 6
Side 1
Person's name
Time period
Place
PRINT
EXIT
read write think
© 2006 IRA/NCTE for use on ReadWriteThink.org. All rights reserved. Credits
es for text on this page.

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Planner

	Readiness	*Profile*	*Interests*
Content			
Process			
Products			

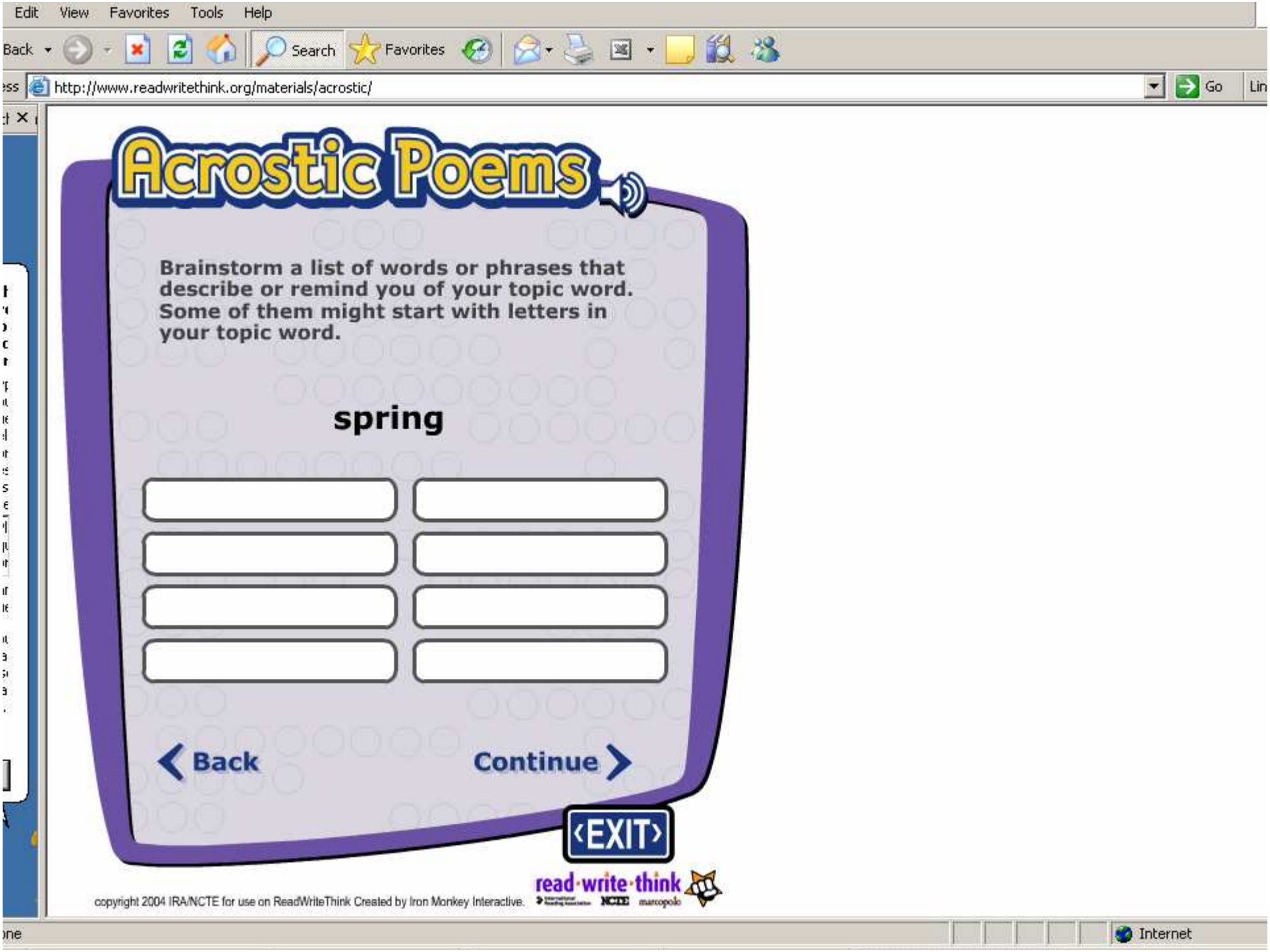
CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

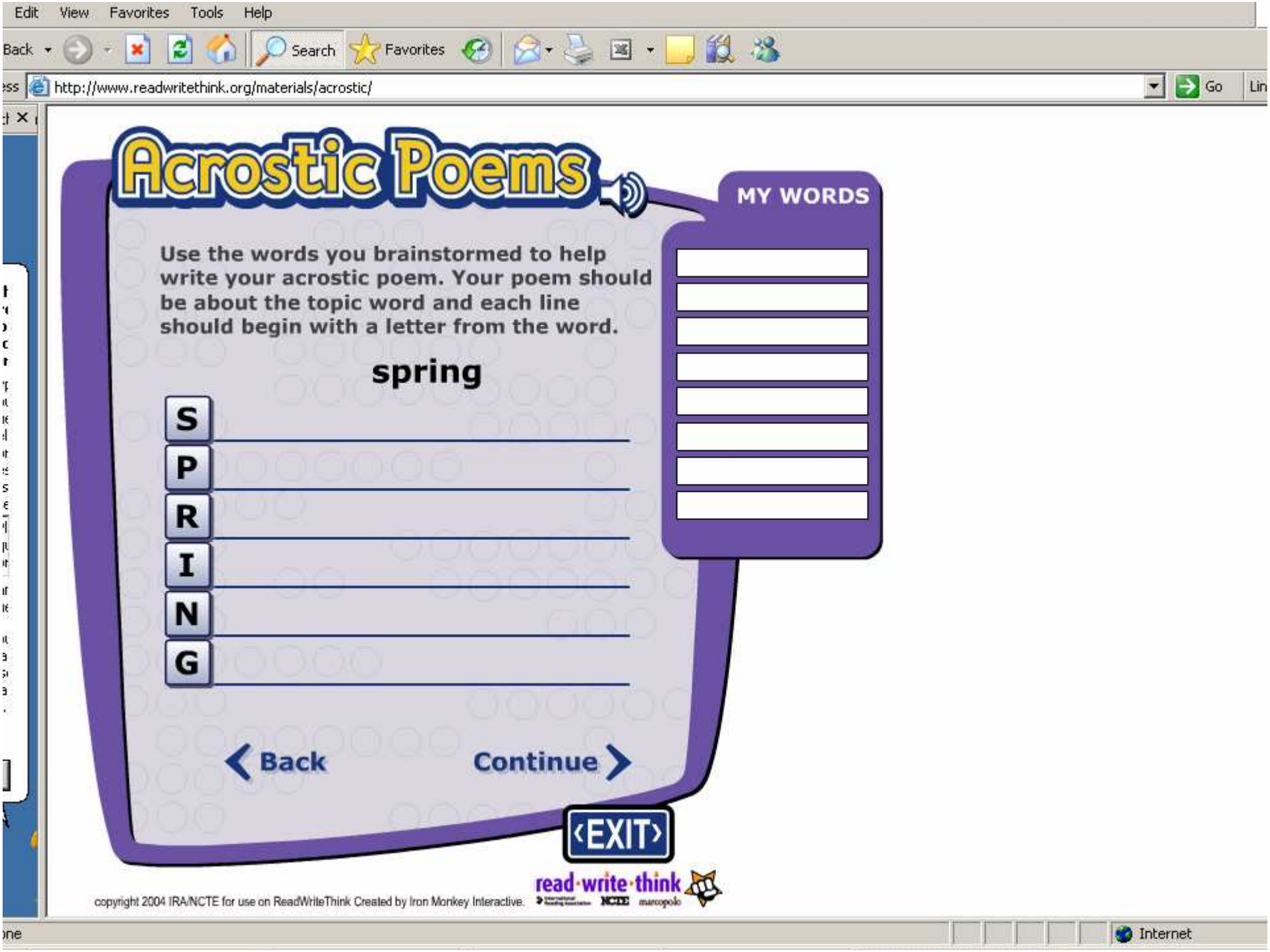
DON JOHNSTON
www.donjohnston.com

Collaborative Planning # 2

Acrostic Poems

http://www.readwritethink.org/materials/acrostic/


Edit View Favorites Tools Help
Back Search Favorites
http://www.readwritethink.org/materials/acrostic/
Go
Acrostic Poems
Brainstorm a list of words or phrases that describe or remind you of your topic word. Some of them might start with letters in your topic word.
spring
Back
Continue
EXIT
copyright 2004 IRA/NCTE for use on ReadWriteThink Created by Iron Monkey Interactive.
read·write·think
Internet


Edit View Favorites Tools Help
Back Search Favorites
http://www.readwritethink.org/materials/acrostic/
Go
Acrostic Poems
MY WORDS
Use the words you brainstormed to help write your acrostic poem. Your poem should be about the topic word and each line should begin with a letter from the word.
spring
S
P
R
I
N
G
Back
Continue
EXIT
read·write·think
copyright 2004 IRA/NCTE for use on ReadWriteThink Created by Iron Monkey Interactive.
Internet

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Planner

	Readiness	*Profile*	*Interests*
Content			
Process			
Products			

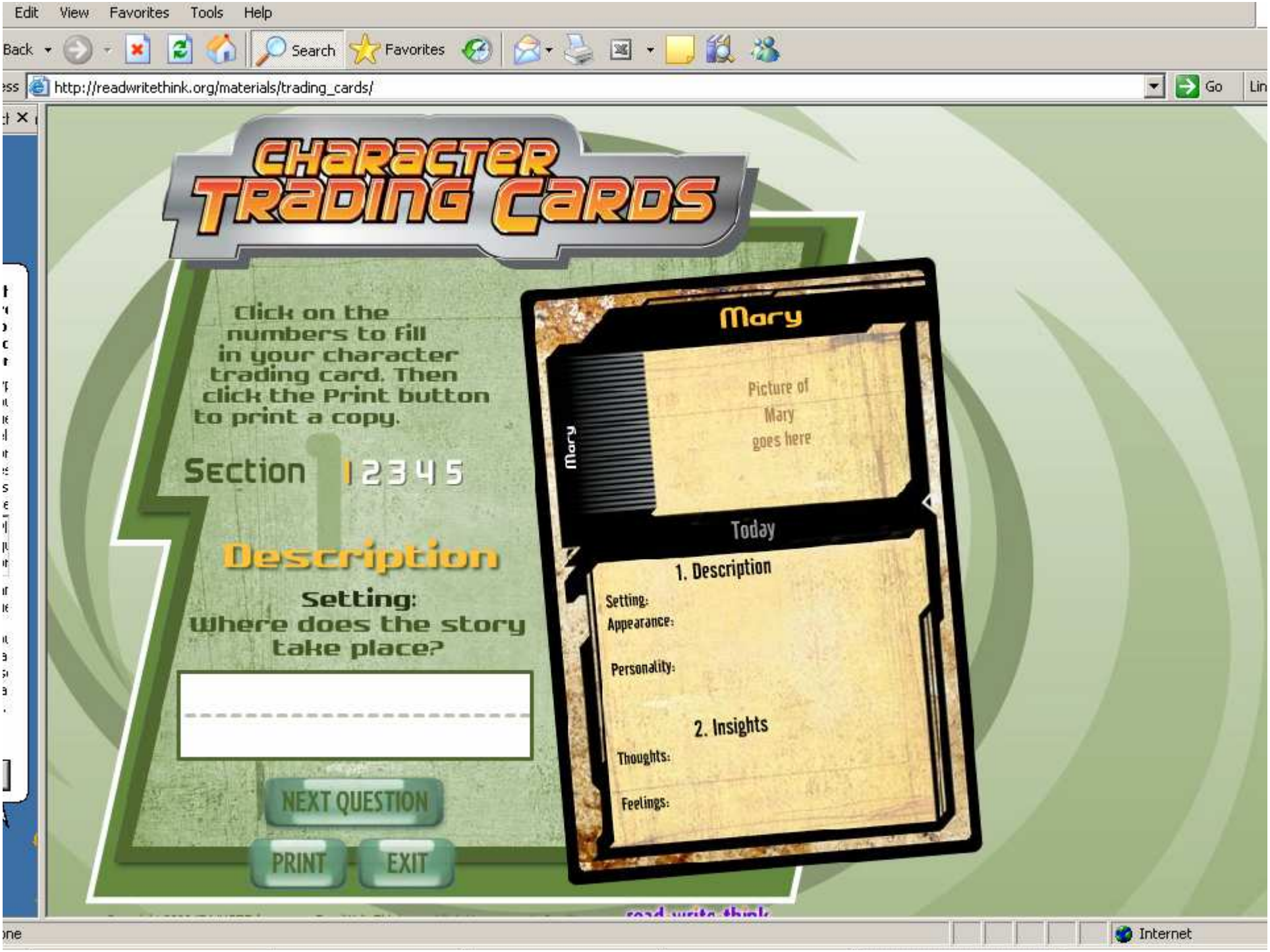
CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Collaborative Planning # 3

Character Trading Cards

http://readwritethink.org/materials/trading_cards/


Edit View Favorites Tools Help
Back Search Favorites
http://readwritethink.org/materials/trading_cards/
Go
CHARACTER TRADING CARDS
Click on the numbers to fill in your character trading card. Then click the Print button to print a copy.
Section 1 2 3 4 5
Description
Setting:
Where does the story take place?
NEXT QUESTION
PRINT
EXIT
Mary
Picture of Mary goes here
Today
1. Description
Setting:
Appearance:
Personality:
2. Insights
Thoughts:
Feelings:
Internet

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

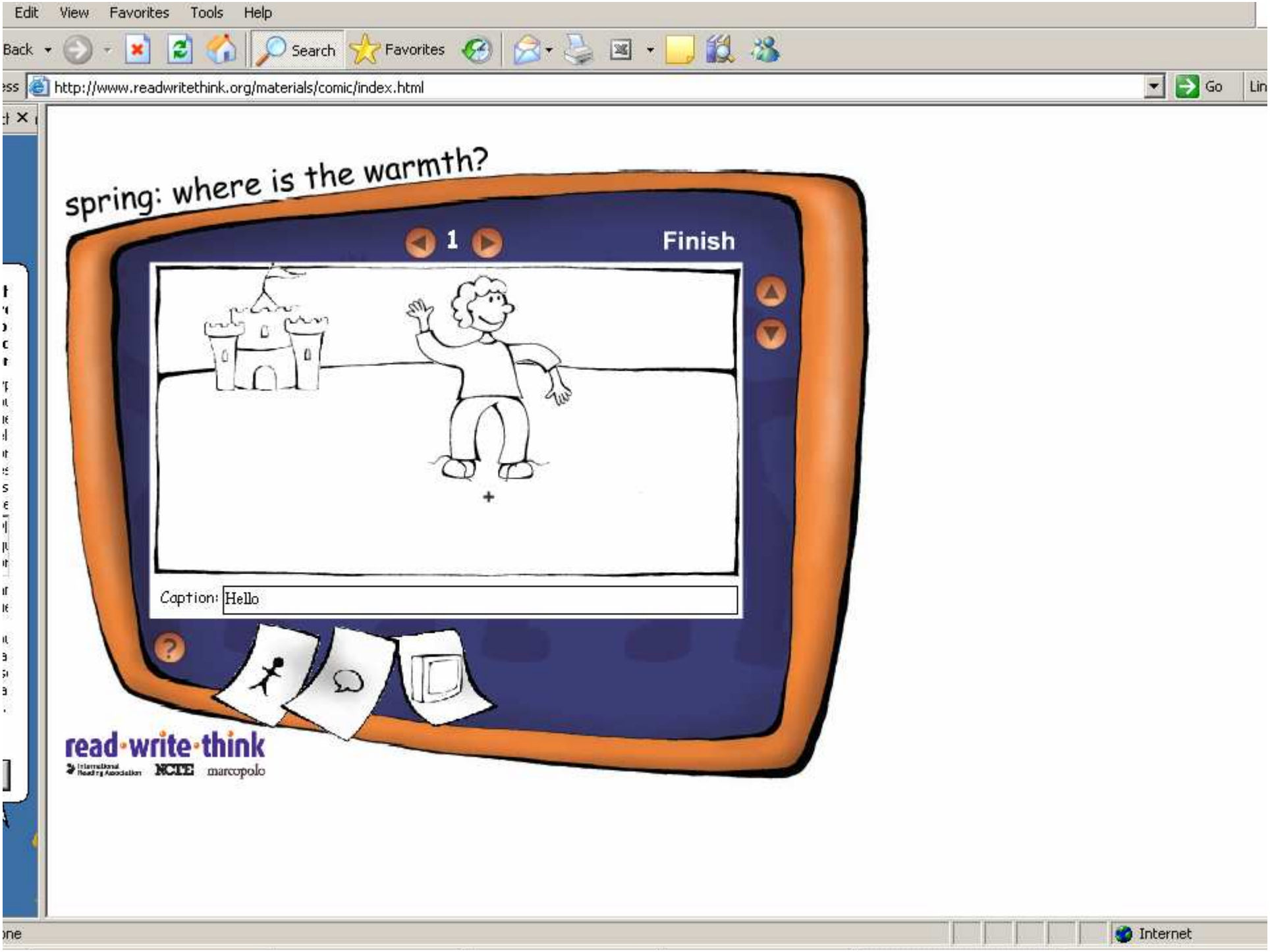
Planner

	Readiness	*Profile*	*Interests*
Content			
Process			
Products			

Collaborative Planning # 4

Comic Creator

http://www.readwritethink.org/materials/comic/index.html


Edit View Favorites Tools Help
Back Search Favorites
http://www.readwritethink.org/materials/comic/index.html
Go
spring: where is the warmth?
1
Finish
Caption: Hello
read·write·think
Internet

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Reflection

- In what ways can DI benefit your students?
- What are the implications for your instructional planning?
- How will you know if you are successfully meeting students' needs?

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

Next Steps

- Who will you share this information with?
- How can you use the planning tool?
- Which technology resources will you access?
- Who can you recruit to help you?
- What additional resources do you need?

Resources

Technology and DI

Enhance Learning with Technology: Strategies for Differentiating
This web page presents a variety of strategies to use in the classroom – adjusting questions, providing alternative activities, flexible grouping, peer teaching, etc.
http://members.shaw.ca/priscillatheroux/differentiatingstrategies.html

Technology to Support Diverse Learners
Consult WestEd's review of the research on technology tools and features to support differentiated instruction. Practical suggestions are presented in specific areas of support, such as visual aids or audio aids.
http://www.wested.org/cs/tdl/print/docs/tdl/home.htm

The Promise of Accessible Textbooks

This information brief provides practical information on accessibility legislation and information about what CAST and other organizations are doing to overcome barriers to accessible textbooks.
http://www.k8accesscenter.org/training_resources/udl/AccessibletextbooksHTML.asp

Technology and DI

teAchnology

This web site uses technology to inform teachers about current practices, literature, and the law in education, as well as professional development. Links to articles related to research on educational practices, including links to information on differentiated instruction, are included. Create customized rubrics, calendars, lesson plans, etc. with a subscription.

http://www.teach-nology.com/litined/dif_instruction/

Virtual Reality/Computer Simulations and the Implications for UDL Implementation

In this brief you can discover how virtual reality/computer simulation can support Universal Design for Learning at both the theoretical and teacher practice levels.

http://www.k8accesscenter.org/training_resources/udl/virtualreality.asp

CITEd CENTER FOR IMPLEMENTING TECHNOLOGY IN EDUCATION
www.cited.org

DON JOHNSTON
www.donjohnston.com

By Content Area: English

Differentiated Instruction in the English Classroom
One chapter of book is available for free download “How Do Teachers Manage a Differentiated Classroom?”
http://books.heinemann.com/shared/onlineresources/E00577/chapter4.pdf

By Content Area: Reading

Learning to Read with Multimedia Material

There is a steadily growing body of research showing that digital text and multimedia environments can play a significant supporting role in reading instruction. Explore the literature base and cutting-edge innovations while finding implementation strategies, guidance on choosing programs, and resources to power up your reading instruction.
http://www.cited.org/index.aspx?page_id=144

Computer-Assisted Instruction in Reading

This short brief gives an overview of Computer-Assisted Instruction (CAI) and explains how it can be applied to enhance reading instruction.
http://www.k8accesscenter.org/training_resources/computeraided_reading.asp

Starfall

The Starfall learn-to-read website is offered free as a public service. It contains various interactive activities and games related to the essential components of early reading. Primarily designed for first grade, Starfall is also useful for pre-k, kindergarten and second grade.
http://www.starfall.com/n/level-a/learn-to-read/play.htm?f

Content Area: Writing

Computer-Assisted Instruction and Writing

This brief explains how Computer-Assisted Instruction (CAI) can be used to improve writing instruction.

http://www.k8accesscenter.org/training_resources/computeraided_writing.asp

Using Assistive Technology to Support Writing

Technology—and especially the subset of technology tools known as assistive technology—can be an effective, if not necessary, element of the writing curriculum for students with disabilities. Read more about the research that supports the use technology in a writing curriculum.

http://www.cited.org/index.aspx?page_id=108

Content Area: Math

Learning Mathematics with Virtual Manipulatives
Abstract concepts are essential to understanding and performing mathematics. Manipulatives represent concretely the abstract concepts and link these concepts to prior knowledge. Virtual manipulatives are basically digital "objects" that can be manipulated, usually with a computer mouse, much like the more familiar physical manipulatives. Discover the research support and practical suggestions for incorporating these powerful learning tools into mathematics instruction. See the extensive list of resources.
http://www.cited.org/index.aspx?page_id=151

Computer-Assisted Instruction and Math
This brief gives a quick overview of CAI and explains how it can be used effectively in math classrooms.
http://www.k8accesscenter.org/training_resources/computeraided_math.asp

Web-Based Resources for Mathematics: Tools and Activities for Teaching and Learning
This valuable resource includes a large annotated list of free web-based tools and activities. Each tool and activity focuses on a specific mathematics concept or skill
http://www.k8accesscenter.org/training_resources/MathWebResources.asp

Content Area: Science

Using Multimedia Tools to Help Students Learn Science

Scientists routinely use a number of technology tools in their daily practice. Students can use similar technologies and multimedia tools to work like scientists and build their reasoning and scientific inquiry skills. Review the research on and strategies to implement these powerful technology tools in the science classroom. See the extensive list of resources.

http://www.cited.org/index.aspx?page_id=148

Computer-Assisted Instruction and Science

This short brief gives an overview of Computer-Assisted Instruction (CAI) and explains how it can be applied to enhance science instruction.

http://www.nwrel.org/scpd/sirs/5/cu10.html

Differentiation for Science

This article discusses differentiated instruction and explains how it can be implemented in the science classroom.
http://www.k8accesscenter.org/training_resources/sciencedifferentation.asp

Background on DI

The Association for Supervision and Curriculum Development (ASCD) Web site
www.ascd.org/pdi/demo/diffinstr/differentiated1.html

Educational Leadership Research Link
www.ascd.org/readingroom/edlead/0009/holloway.html

Guild, P.B., and Garger, S (1998). *What Is Differentiated Instruction? Marching to Different Drummers* 2nd Ed. (ASCD, p.2)
http://www.ascd.org/pdi/demo/diffinstr/differentiated1.html

Holloway, J.H., (2000). Preparing Teachers for Differentiated Instruction. *Educational Leadership*, 58 (1).
http://web.uvic.ca/~jdurkin/edd401su/Differentiated.html

Theroux, P. (2001). Enhance Learning with Technology. *Differential Instruction*.
www.cssd.ab.ca/tech/oth/learn/differentiating.htm

Tomlinson, C.A., (1995). Differentiating instruction for advanced learners in the mixed-ability middle school classroom. ERIC Digest E536.
http://www.ed.gov/databases/ERIC_Digests/ed389141.html

Tomlinson, C.A., (2000). Differentiation of instruction in the elementary grades. ERIC Digest. ERIC_NO: ED443572.
http://ericir.syr.edu/plweb-cgi/obtain.pl

Tomlinson, C.A., & Allan, S. D., (2000). *Leadership for differentiating schools and classrooms*. Association for Supervision and Curriculum Development.
http://www.ascd.org/readingroom/books/tonlinson00book.html

Web Article: Mapping a route toward differentiated instruction.
http://www.ascd.org/pdi/demo/diffinstr/tomlinson2.html

Web Site: for Teachers, Administrators, and Higher Education
www.teach-nology.com/litined/dif_instruction/

Willis, S. & Mann, L., (2000). Differentiating instruction: Finding manageable ways to meet individual needs (Excerpt). Curriculum Update.
http://www.ascd.org/readingroom/cupdate/200/1win.html