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How to Use This Book

Technology is a tool that when integrated into the curriculum can motivate students, encourage higher order thinking, and enhance learning. *32 Quick and Fun Content Area Computer Activities* contains a variety of activities across the subject areas that seamlessly integrate technology into the classroom. Whether the subject you are teaching is language arts, math, science, or social studies, the easy to follow computer activities can boost students understanding and learning of what is already being taught in the classroom.

The activities in this book range from using word-processing programs, slide show programs, painting programs, desktop publishing, and spreadsheets to using the Internet. While the activities are not software specific, there are some software specific templates available for many of the activities. The templates efficiently maximize students' time at the computer and allow for students to focus on the main objectives of each activity.

Each activity can be done in a 45–60 minute class period. The activities are content based and aligned to content and technology standards, making them easy to fit into what is already being taught.

The book is divided into the following four subject area sections:

- Language Arts Activities
- Math Activities
- Science Activities
- Social Studies Activities

Each of these four sections contains a summary page with a description of the activities. There are eight activities in each section. Each activity contains a two-page teacher section. The teacher section contains clear objectives, materials needed to complete the activity, a step-by-step procedure, an assessment, and one or more extension activities that continue the learning. Content and technology standards are listed in each activity as well as in the Correlations to ISTE and McRel section on pages 10–15. In addition, there is a two-page student section that includes easy to follow step-by-step directions for the student to complete the activity on the computer and a sample of the activity that can also be accessed on the CD-ROM.

The accompanying CD-ROM contains templates, activity samples, assessment rubrics, and appendices. You can reference the CD-ROM section on pages 159 and 160. Note: The templates, activity samples, or assessment rubrics were created using one of the following computer software (minimum software version needed is noted in parenthesis):

- *Microsoft Word* (1998 or above)
- *Microsoft Excel* (1998 or above)
- *Microsoft PowerPoint* (1998 or above)
- *KidPix Deluxe* (version 3.0 or above)

Research on Using Technology in the Classroom

There has been a lot of research on the importance of integrating technology into the K–12 curriculum. The research has shown positive correlations throughout the subject areas on how technology can improve students' work. It has been found that aligning technology with clear objectives and content standards allows for most favorable student learning. There has also been evidence that technology can improve students' higher-order thinking. Technology has also shown favorable results on improving learning with special needs students.

Subject Areas

In all the subject areas, encouraging results have been found when technology is used in the classroom setting. In the study *The Effectiveness of Technology in Schools: A Summary of Recent Research* (1996), it is reported that "...educational technology has demonstrated a significant positive effect on achievement. Positive effects have been found for all major subject areas, in preschool through higher education, and for both regular education and special needs students."

In language arts and social studies, teachers found that when students completed multimedia projects they had increased knowledge in research skills, ability to apply learning to real world situations, organizational skills and more interest in the topic. (Cradler and Cradler 1999). Allen Glenn and Don Rawitsch (1984) suggested reasons to use the computer in the social studies classroom: "...five ways computers can be used in social studies; i.e., as a method of delivering content, as a tool for retrieving and analyzing information, as an example of technology use in society, as a tool for developing thinking skills, and as a classroom management aid." Wendy D. Freiwald (1997) reviewed of the literature of computers in elementary social studies classrooms and concluded that there was advantageous learning when technology was integrated into the social studies curriculum.

There have been encouraging connections between the use of technology and math and science. Harold Wengilinsky's (1998) research on the effectiveness of technology in teaching math found that computers can raise student achievement and even the school climate. He found that students whose teachers used computers for math applications instead of drill and practice scored higher than students whose teachers did not. He also concluded that teachers who used computers for higher learning activities, as opposed to drill and practice, correlated to the teachers and students having better attendance, less tardiness, and a higher morale. In her research on how technology changes the teacher-student relationship, Beth McGrath (1998) concluded that when computer technology is incorporated into the math and science curriculum students become more motivated; cooperative, collaborative, and communicative; are persistent in problem solving; and have interdisciplinary opportunities. Kathy Norman and Katherine Hayden (2002) demonstrated in their research that when science teaching, writing, and the use of technology is integrated in the K–12 classroom there is optimum learning.

Research has shown that writing on the computer in all the subject areas is an effective tool. Results of the studies on writing instruction in the article "Technology & Literacy: Is There a Positive Relationship?" (1999) indicated that the technology allowed students to focus on the content rather than the mechanics. The studies also found that students wrote more and developed better essays. Colette Daiute's (1985) studies of student writers substantiated these findings and indicated that students who use a word processor write more than those who use pen and pencil.

Crossword Puzzle

Objectives

- ◆ Students use a crossword puzzle format to summarize and present information about a topic.
- ◆ Students use word-processing software to create crossword puzzles.

Materials

- ◆ curriculum-related content reading material
- ◆ word-processing software, such as *Microsoft Word*
- ◆ printer
- ◆ writing paper and pencils
- ◆ “Crossword Puzzle” sample (file name *la1samp.doc*)

Procedure

1. Review with students what a crossword puzzle is and how it is completed. Remind students that crossword puzzles have a theme.
2. Discuss the information that should be collected when questions are being written for a crossword puzzle.
3. Review the following list of ideas for the topics of crossword puzzles. Brainstorm other theme ideas as well.

- key vocabulary and concepts
- memorable events and dates
- famous individuals
- places of importance

4. Help your students decide on a book or a subject for their puzzles. Have each student write 12 clues or questions related to the selected topic. Also, have the student provide the correct answers for each. The student should divide his or her clues or questions into two sections (6 ACROSS and 6 DOWN) and number each clue or question from one to twelve. Remind students that their answers need to share common letters. You may want to provide a copy of a crossword puzzle for student reference.
5. Have students draw their crossword puzzles on paper to take to the computer. This should be done very quickly, only to be used as a reference when students go to the computer.

Content Standards (McREL)

Students use reading skills and strategies to understand a variety of literary passages and texts.

Students use strategies to write for a variety of purposes.

Technology Standards (ISTE)

Students use general purpose productivity tools and peripherals to support personal productivity, remediate skill deficits, and facilitate learning throughout the curriculum.

Crossword Puzzle *(cont.)*

6. Allow students time to complete their crossword puzzles at the computer. A sample (file name *la1samp.doc*) is provided, and answers to the puzzle are included.
7. As students begin to work, remind them of the following tips:

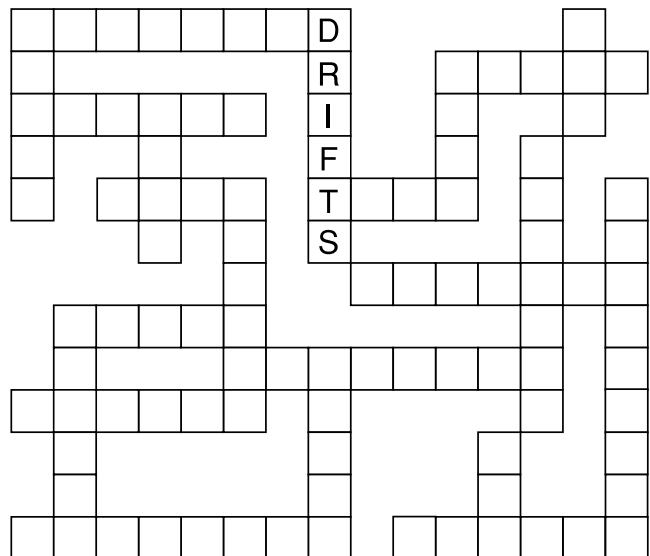
- Put the number to the left of the ACROSS answers and above the DOWN answers.
- Enter only one number or letter in each cell.
- Have some of your answers cross each other with shared letters.
- Do NOT have letters side by side or crossing each other unless they are part of two answers.
- Space your answers with at least one cell between each.

Assessment

Assess students for their ability to include accurate information about the subject or reading material and create eye-catching puzzles with visual appeal by using color, size, and/or boldface text.

Extension

Other topics for crossword projects might include grammar or famous authors and their work. In addition to sharing your students' crossword puzzles in class, it is also fun to make their puzzles available in your school library or upload them to a class Web page.



Crossword Puzzle *(cont.)*

Directions for Students

1. You will create a crossword puzzle using a word-processing application. It will contain information from a book you have read.
2. Open a word-processing program, such as *Microsoft Word*. Type your twelve clues or questions into a word-processing document.
3. Save your document. Name your document with the name of your puzzle subject and your initials (Example: *harrypottercd*).
4. Insert a page break. Go to the **Table** menu in the toolbar at the top of the screen and scroll down to **Insert... Table**. Make the table 15 columns by 15 rows.
5. Select the entire table. Choose **Comic Sans** (or other font as desired), **10** as the font size, and **Center Alignment** so the letters will be in the middle of each cell. Make each cell bold as well.
6. Enter your answers in all capital letters. You will need to work at fitting all the answers onto the grid with the “down” and “across” words overlapping. Remember to add a number (from 1 to 12) before each answer.
7. Put a border around each Across and each Down answer. Select each answer, one at a time. Go to the **Format** menu in the toolbar and scroll down to **Borders and Shading**. Click on the **All Borders** bordering tool. Make the border wide by clicking on the **Width** menu and scrolling down to select the desired width of the border. **DO NOT** put a border around any of the empty cells.
8. Once the Answer Sheet is created, copy it and paste it to make the Puzzle Worksheet. In the first puzzle, delete each letter. **DO NOT** delete the puzzle question numbers. This will make your Puzzle Worksheet. The second puzzle will be your Answer Sheet.
9. Check and save your work. Print your Crossword Puzzle document. You will have three pages: puzzle clues, a puzzle work sheet, and an answer sheet.
10. Share your puzzle with others in your class!

Crossword Puzzle *(cont.)*

Sample

Japanese Children's Favorite Stories Crossword Puzzle

Created by Mrs. Van Gorp

ACROSS

1. How many hats did the old man give to the statues?
2. What did the old couple want for their New Year?
3. What was the third creature that Peach Boy took with him to fight the Ogres?
4. What is the Japanese word for "Peach Boy"?
5. What did the princess hang on the Green Goblin's long nose?
6. What did one boy do to the Red Goblin's nose?

DOWN

7. What was the name of the little warrior that saved the princess by putting a needle into the Green Devil's nose?
8. What did the princess use that was magical and helped Little Warrior grow?
9. What did the barber use that caused the monkey to lose the end of its tail?
10. What was the monkey playing when he fell again into the thorns?
11. What did the monkey bring the hungry beggar?
12. What animal did the Old-Man-of-the-Moon take with him?

