

# Designing the Environment

Environment plays an important role in the development of emergent literacy in young children. The ideal environment is arranged so that the child gains literacy skills by exploring written materials, related toys, and computer software. The child should experience instant success and then be challenged to achieve further skills by being offered a variety of options. Ideas for creating a literacy-rich classroom and for setting up the technology center to elicit optimum literacy benefits are included in this section.

## The Classroom as a Literacy-Rich Environment

Classrooms nourish early literacy by supplying a variety of materials for reading and writing. Literacy-rich classrooms are supported by adults who are responsive to children's many questions about written language, who are accepting of children's early literacy attempts, and who serve as good models by reading and writing themselves. Classroom areas should include a variety of learning centers, such as blocks, books, computer, and housekeeping. Different types of children's literature, including fiction, nonfiction, and poetry written and illustrated appropriately for the young child, should be readily accessible in the classroom. Multicultural literature which includes fiction and nonfiction, with characters representative of many cultures and ethnic groups, should also be available for children's use.

The following practices will help teachers evaluate their learning environments with respect to literacy, providing them with ways to enrich those environments and extend the literacy experiences offered:

- Have predictable books available to encourage emergent literacy.
- Display books so that the picture on the cover can be easily seen.
- Read aloud to children on a daily basis with ample time provided for children to discuss pictures and actions in read-aloud books.
- Place books in a variety of areas (e.g., software-related books in the technology center or science books in the discovery area).
- Have an ample supply of books and tapes available in the listening center.
- Encourage writing and drawing daily.
- Stock the writing center with a variety of materials, including markers, stamps, pencils, a variety of paper, stapler, and tape.
- Adapt reading and writing materials so that all children can use them.
- Supply a variety of appropriate software choices, such as interactive books, writing and drawing programs, and discovery programs at the technology center.
- Have a variety of materials, including various types of paint, paper, and painting utensils, available in the art center.
- Encourage children to work and talk together at the computer and other centers.

## The Technology Center

### Physical Considerations

Before you actually begin using the computer in your program, consider the environmental design. The technology center within the classroom should be a safe, pleasant place for children. Whether the computer is in the classroom daily or access is on a rotating basis, the equipment set-up requires some planning. To set up the technology center, keep the following recommendations in mind:

- Select a low traffic and well-lit area for the technology center, away from direct sunlight to avoid glare on the screen. Disks and computer chips can be damaged by extremes in temperature.
- Place the computer on a low table or cart at the appropriate height for the child. In an inclusive classroom, use a table with adjustable legs which allow the tabletop to be raised or lowered to accommodate a child in a wheelchair.
- Place the computer table against a wall, near an outlet. Tape wires securely to the floor to avoid any accidents.
- Avoid placing the computer table on a rug, since static electricity can cause software to operate improperly. If a rug is unavoidable, then consider using a static control mouse pad.
- Leave at least two chairs at the technology center, and encourage children to work together to develop cooperative learning, language, and social skills.
- Use a surge protector to protect the computer from power surges which can damage hardware and erase memory.
- Keep software in covered disk holders away from any type of magnetic field (e.g., fan, motors, telephone, the monitor), the heat register, or direct sunlight.
- Keep CD-ROMs in their plastic storage cases in a disk box at the technology center for easy access by children.
- Avoid storing or using any magnets or magnetic toys near the computer area.
- Arrange the equipment to allow free air circulation around and into the vents on the monitor and CPU.
- Keep the computer, monitor, and printer covered when not in use.

The technology center should be made interesting and accessible for the children. Placing related books, toys, or activities nearby and available to the children will be helpful in reinforcing concepts.

Label the parts of the computer system to encourage the children to become familiar with the written words associated with each part, as well as to reinforce the word-object relationship. Discuss the rules for the technology center and for disk handling with the children (such as no food and drinks or dirty hands at the computer). Encourage children to draw pictures to illustrate the rules or instructions for operating the equipment; then post their pictures in the technology center. Reminders help foster children's independent computer use.

### **Equipment Recommendations**

For children to achieve the most benefit from the technology center, certain pieces of equipment are needed. Besides the computer and the monitor, the type of equipment used for positioning the computer will determine its accessibility for all children. The following is certainly not inclusive, but serves as a good starting point:

- *Adjustable computer cart or table* – An adjustable table ensures that any child, no matter what the seating needs, will be able to use the computer. For children in wheelchairs, the monitor height will need to be adjusted to their eye level. Depending on the size of the wheelchair, the top shelf on some carts may need to be removed entirely.
- *Smaller table with chair* – Ambulatory children may need a different size table for appropriate computer/monitor placement. Their feet should touch the floor comfortably when they are using the computer. Make sure there is enough room on the table for the mouse pad so that children can move the mouse easily. If an alternate input device, such as a switch or touch tablet, is used, it should be placed on the table with the keyboard hidden from view to reduce extra stimuli.

- *Disk storage box* – Store the original software disks in a disk storage box in a safe place. Disks can be arranged alphabetically, by type, or by input method. Documentation should be organized in the same manner as the software and kept in a file cabinet or other storage container easily accessible to all staff. Arrange customized set-up disks for individual children according to children’s names. This way, the staff can simply look for a child’s name, select the disk, and use it with little assistance. Another alternative would be to store the “kid file” on the program of *KidDesk*. Files can be stored in each child’s personalized folder. If the staff is fairly new to computer use with children, put “cheat sheets” near the computer which include a list of the peripherals required, an outline of the instructions for software use, and specific teaching instructions or applications for each child.
- *Color printer* – The printer is an essential piece of equipment for literacy activities. Select a printer that prints both graphics and text, since it is important to be able to print both the pictures or drawings and the written text when producing books from software, such as *HyperStudio*. Teachers can use the computer and printer to write IEPs, design calendars and newsletters, and for other recordkeeping tasks. Teachers and families can print computer screens and scanned images to create off-computer materials such as characters and objects from stories.
- *Alternate Input Methods* – Equipment for alternate input methods may be needed and include the following:
  - **Switch interface** – Some children may need to use a switch as input. Physical or cognitive limitations may prevent them from using the mouse or keyboard. In order to use a switch input, a switch interface, Discover:Kenx or IntelliKeys, will need to be connected to the computer. Software written specifically for single switch input, such as *Storytime Tales* or *Circletime Tales*, can be used with the switch interface. Other programs can be adapted for switch use through Discover:Kenx or IntelliKeys. See Chapter 7 for ideas on customizing activities with these devices.
  - **Touch tablets** – Various touch sensitive devices or touch tablets, such as the TouchWindow, Key Largo, and IntelliKeys, are available as alternate input methods. Each device has advantages and disadvantages and must be evaluated before being recommended for an individual child. Specialized software may be required for some devices. Overlays can be produced to correspond to screens or functions in the software. Also off-computer activities can be designed around overlays to encourage sequencing or retelling a story.
  - **Clamps, tape, or other securing devices** – Adaptive equipment may be needed to secure the input device in a stable position so that the child is successful in using the computer and is not distracted by an unstable device. Switches can be secured in place with a switch holder or a switch mount. Nonslip material, such as Dycem, may also be placed under switches, touch tablets, or the keyboard.

### Support Materials

Off-computer materials are important components of technology literacy activities. The technology center should include items such as books, stuffed animals, puppets, or other toys, which correspond with the theme or subject matter in the software. Capture pictures or pages from the children’s favorite software programs and use these as patterns to reproduce the characters in a flannel board version of the story. Children can recreate the story on their own. Books can be made from the printed pages and placed in the technology center or sent home to be shared with families.

Books which are provided with the Living Books series and other software should be kept in the technology center. They help children relate the computer screen to a page in the book.

Children can use the book along with the software or read the book as they wait for their turn at the computer.

Off-computer materials for children with multiple disabilities may include battery-operated toys or a tape recorder with a switch. The child can press a switch to listen to a book tape or play with a toy which relates to the content of the software. These materials could also be sent home to assist families with home literacy activities. The child can share a book with family members by pressing a switch to play the book tape.

## **Adaptations to the Environment**

The environment should be adaptable so that all children can participate equally in technology literacy activities. The monitor will need to be positioned at a suitable eye level for children with multiple disabilities. Consult a physical or occupational therapist regarding the placement of equipment, and discuss possible input devices as alternatives if the child lacks the fine motor skill to control the mouse.

Many children who are physically able to use the keyboard may find it overstimulating or may not have the eye-hand coordination needed to operate the mouse. Alternate input devices might be considered. Some children can use touch tablets quite effectively; others might need a single switch device.

When using an alternate input device, simplify the environment for the child by removing the mouse and keyboard from the child's view. Present the switch or touch tablet within easy reach and in front of the monitor. The other pieces of equipment can be covered with a static-free cloth if they are too distracting to the child. To position the equipment at a comfortable distance, a long monitor cord and switch cable may be needed.

If children are able to use the mouse, be sure they can comfortably reach and move it. The mouse and pad should be positioned in front of the monitor, with the keyboard hidden from view unless the keyboard is also being used. Depending on the child's hand preference and physical abilities, the mouse will be placed to the right, left, or at midline.

Evaluate the technology center occasionally to consider the distractions in and around it. Consider the classroom noise level and traffic paths—factors that can distract some children. If necessary, rearrange the classroom so that children in the technology center can attend to software without unusual distractions.

Adaptations may need to be made to the keyboard for those children using beginning word processing programs for writing and artwork. Stickers may be placed on some of the letter or function keys to help children locate letters in their name. Adaptations can help children be successful and gain independence in using equipment.