Tech (S.T.E.A.M.)

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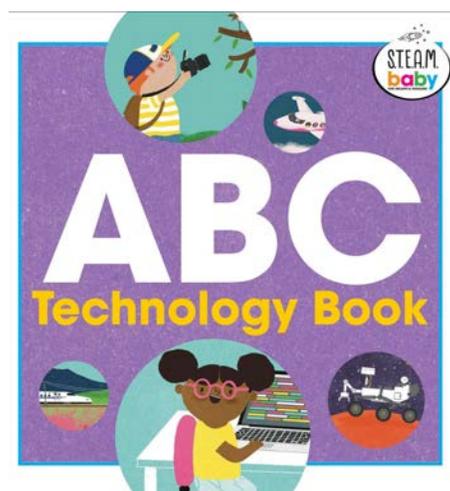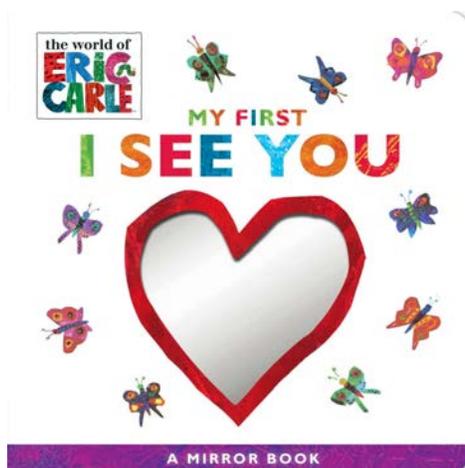
Technology

Engaging with technology helps infants develop essential skills for navigating the modern world. By interacting with simple, tangible tools such as mirrors, stacking toys, and sensory gadgets, infants start to understand cause and effect and basic principles of how things work. These experiences enhance their adaptability and creativity. Technology can be both tangible, like sensory balls and gears, and intangible, such as understanding patterns and sequences. Early exploration of these tools fosters collaboration and communication as infants observe and mimic actions, laying the groundwork for problem-solving and teamwork.
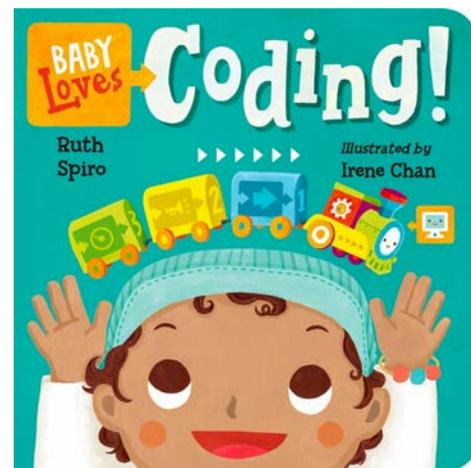
Books We Love That Support Technology Concepts:
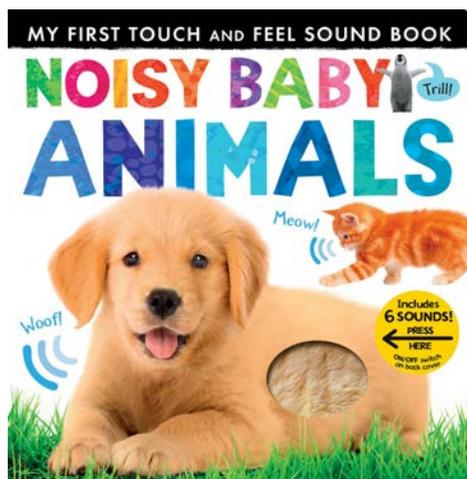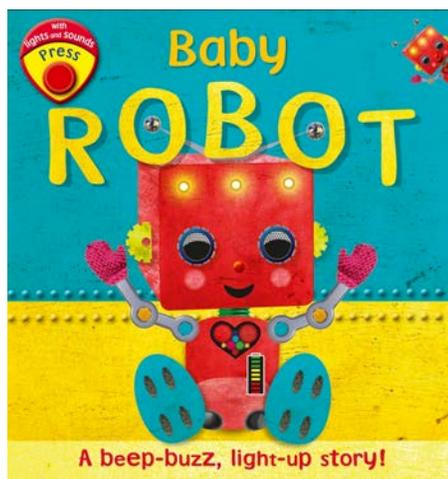
ABC Technology Book,
by Sage Franch

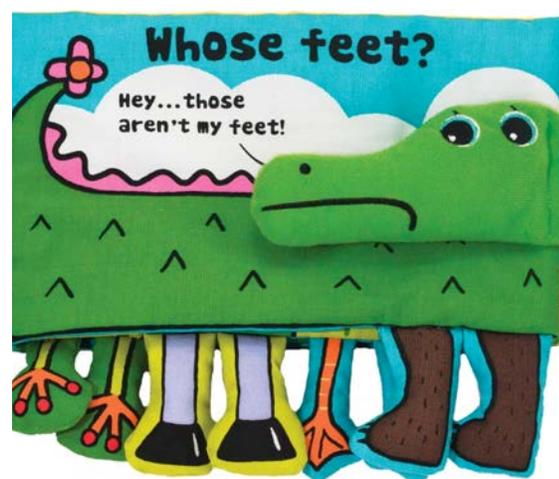**My First I See You**
by Eric Carle

Baby Loves Coding,
by Jeanne Willis

Noisy Baby Animals,
by Patricia Hegarty

Baby Robot,
by DK Books

Whose Feet?
by Melissa and Doug Toys

20 Materials to Support
Technology Exploration

1. Flashlights
2. Props for Puppet Show
3. Musical Device
4. Headphones
5. Tube lighting
6. Interactive storybooks with buttons
7. Bead Maze (Coding Concepts)
8. Musical instruments with colorful buttons
9. Mirrors
10. Pop-up Toys
11. Sound Toys
12. Mechanical Rattles
13. Sensory Balls
14. Projection Toys (e.g., light shows)
15. Touch-and-feel Books
16. Play Phones (non-electronic)
17. Color-Changing Items (e.g., color-changing cups)
18. Magnetic Toys
19. Mechanical Push-and-Pull Toys
20. Tactile Discovery Boards
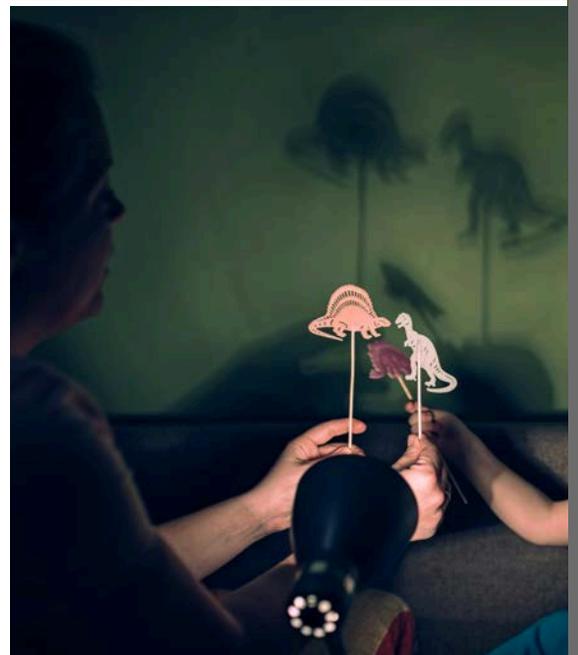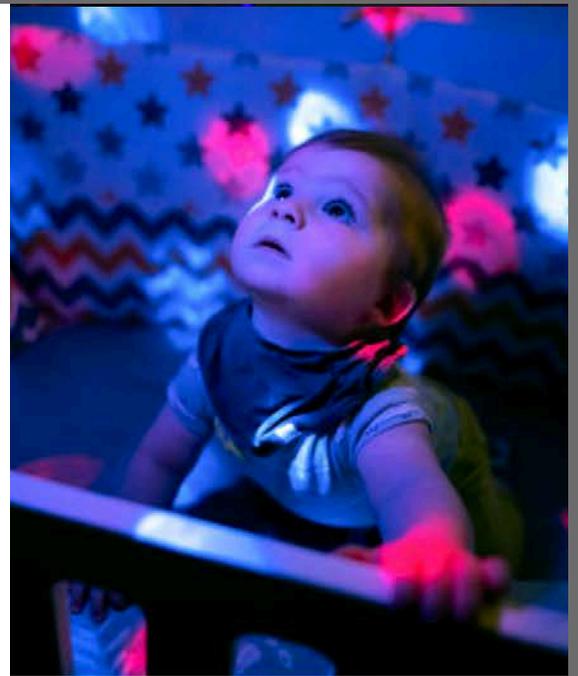
Music and Movement Through Technology

MATERIALS

- Electronic music devices, choose from:
  - Toy keyboards
  - Electronic drums
  - Synthesizer toys
  - Music-playing devices to listen and dance to music.
- Headphones or speakers (optional, for amplifying the sounds)

DIRECTIONS

- Introduce the electronic music devices to the children, explaining that they can make different sounds and music.
- Encourage children to explore the devices independently, experimenting with different buttons, keys, or settings to produce various sounds.
- Encourage children to express themselves through music, whether by dancing, singing along, or creating their own compositions using the devices.

LEARNING OBJECTIVES

- **Introduces basic technology concepts:** Children will begin to understand how electronic music devices work and how they can be used to create and manipulate sounds, laying the foundation for future technology literacy.
- **Develops auditory perception:** Children will listen to and explore different sounds produced by electronic music devices, enhancing their auditory discrimination skills.
- **Develops motor skills:** Children will manipulate buttons, keys, and other electronic devices, supporting the development of both fine motor control (using fingers to press buttons) and gross motor coordination (moving arms to interact with larger devices, dancing, etc.)
- **Fosters creativity and expression:** Children will experiment with creating their own musical sounds and compositions, expressing themselves through music.

Busy Board Exploration

MATERIALS

- Plywood board or sturdy wooden panel
- Various objects/materials to attach. Consider: Assorted door latches, safety locks, fabric pieces or ribbons, small mirrors, light switch cover, soft rubber knobs or pulls, adhesive-backed hook and loop fasteners, gears, bells, spinners, bells, etc.
- Drill and screws

DIRECTIONS

- Cut the plywood board to the desired size, ensuring smooth edges. Sand the surface if needed.
- Plan the layout by arranging the assorted latches, locks, fabric pieces, door stoppers, brush, mirrors, light switch cover, and other items on the board. Consider spacing and accessibility for little hands.
- Use a drill to attach each component securely to the board. Ensure that all items are firmly attached to prevent any potential hazards.
- If possible, incorporate moving parts such as hinges or spinners, adding an extra layer of engagement and intrigue.

LEARNING OBJECTIVES

- The various latches, locks, and knobs encourage babies to use their fingers, hands, and limbs, **promoting the development of fine and gross motor skills.**
- Different textures, fabrics, and materials on the busy board stimulate sensory exploration, **enhancing tactile awareness.**
- Babies **engage in problem-solving** as they figure out how to manipulate the latches, switches, and moving parts to achieve a result.
- Elements like door stoppers and spinners introduce the **concept of simple machines, as well as cause and effect,** allowing babies to understand how things work and how their actions result in movement or changes.

Coding Concepts with Tunnels

MATERIALS

- Large cardboard boxes
- Non-toxic markers or paint (optional for decorating)

DIRECTIONS

- Flatten the large cardboard boxes and then reassemble them to create a long tunnel. Ensure all edges are taped securely and any sharp corners are smoothed out for safety.
- Decorate (Optional): Use or provide non-toxic markers or paint for babies to decorate the outside or inside of the tunnel.

LEARNING OBJECTIVES

- **Sequential Thinking:** Crawling through the tunnel represents a sequence of movements and actions, similar to how coding involves a sequence of commands to achieve a goal.
- **Directional Movement:** Understanding the concept of moving in a specific direction (entering at one end and exiting at the other) mirrors the directional commands in coding.
- **Gross Motor Skills:** Encourage the development of gross motor skills as babies use their muscles to crawl through the tunnel.
- **Spatial Awareness:** Help babies understand space and movement, as they navigate through the confined space of the tunnel.
- **Problem-Solving:** Support early problem-solving skills as babies figure out how to move through the tunnel and reach the objects at the end.

Mirror Exploration

MATERIALS

- Unbreakable, baby-safe mirrors
- Soft padding or mats for the floor
- Colorful toys or objects (optional)

DIRECTIONS

- Securely place the baby-safe mirror on the floor or attach it to a wall at the baby's eye level. Ensure it is firmly secured and cannot fall or tip over.
- You can encourage engagement by sitting with the babies and guiding them to look at and touch the mirror. Point out their reflection and model different movements.

LEARNING OBJECTIVES

- **Reflection and Feedback:** Mirrors provide immediate feedback, similar to how a computer program reflects the result of a code. Babies see their actions reflected in real-time, helping them understand the concept of immediate feedback.
- **Cause and Effect:** The mirror reflects the baby's movements, teaching the principle of cause and effect, which is fundamental in coding and technology.
- **Pattern Recognition:** Observing their own movements and expressions helps babies start to recognize patterns, a basic skill used in coding for understanding and creating algorithms.
- **Self-Awareness:** Foster self-awareness as babies recognize their own reflection in the mirror.
- **Social and Emotional Development:** Encourage social and emotional development by allowing babies to see themselves smile, laugh, and make different facial expressions.

Peek-a-Boo Lights

MATERIALS

- Battery-operated or LED Christmas lights (ensure they are safe and cool to the touch)
- Soft blanket or playmat (for baby to sit or lay on top of)
- A soft, sheer, and translucent fabric to cover the lights

DIRECTIONS

- Lay a soft blanket or playmat on the floor, creating a comfortable and safe space.
- Gently spread the sheer fabric flat on the floor and place Christmas lights under fabric:
- Carefully arrange the battery-operated or LED Christmas lights underneath the sheer fabric. Ensure the lights are evenly distributed and create a soft glow through the fabric.
- Dim the room lights or create a soft ambiance to accentuate the gentle glow of the Christmas lights coming through the fabric.
- Position your baby on the blanket or playmat in front of the sheer fabric with the hidden Christmas lights and let them explore, reveal, and marvel.
- **Always supervise closely to prevent babies from putting the lights in their mouth.**

LEARNING OBJECTIVES

- **Encourages tactile exploration** as the baby reaches out to touch the sheer fabric and the lights hidden beneath. This activity supports the **development of their senses and motor skills.**
- **Engages multiple senses,** including sight and touch, during the peek-a-boo play with the Christmas lights and sheer fabric. This sensory-rich experience **helps babies integrate and make sense of different stimuli.**
- **Encourages cognitive development** as the baby engages in problem-solving by discovering the lights beneath the fabric. This activity promotes curiosity and exploration.
- **Fosters emotional and social development** by providing a soothing and interactive playtime. The peek-a-boo play with lights creates positive associations and bonding moments with adults.
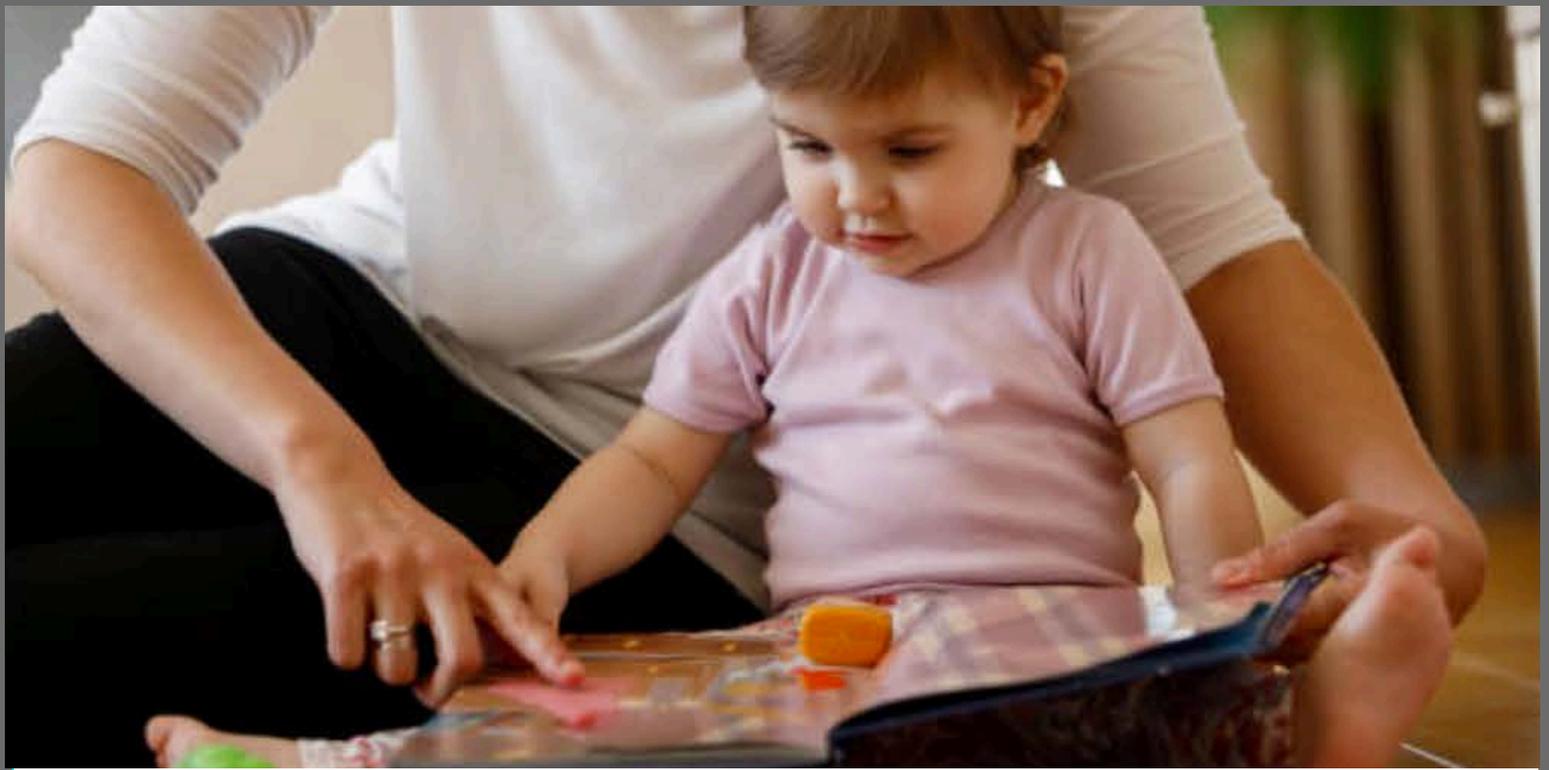
Interactive Storybooks

MATERIALS

- Sturdy interactive board books; (they may have flaps, textures, mirrors, musical buttons, etc.)
- Soft, comfortable reading area (blankets, pillows)

DIRECTIONS

- Create a cozy reading nook with soft blankets and pillows to make it inviting for babies.
- Select a sturdy board books with interactive elements such as flaps to lift, textures to feel, mirrors, and pop-ups.
- Sit with babies and read the story aloud, engaging with the babies by pointing to and discussing the illustrations.
- Allow babies to explore the different interactive features of the book independently.
- Revisit favorite books regularly to reinforce familiarity and comprehension.

LEARNING OBJECTIVES

- **Sequencing:** Reading a story from beginning to end introduces the concept of sequencing, a foundational aspect of coding where instructions must be followed in a specific order.
- **Interaction:** Engaging with the book's interactive elements parallels interactive elements in coding, where user input (e.g., clicking a button) triggers a response.
- **Cause and Effect:** Lifting a flap to reveal a hidden image or touching a texture to feel a different surface teaches cause and effect, a key principle in understanding how actions lead to outcomes in coding.
- **Attention and Focus:** Improve attention span and focus as babies engage with the story and its interactive elements.
- **Social Bonding:** Strengthen the emotional bond between caregiver and baby through shared reading time.