

# The Instrument Families in the Orchestra

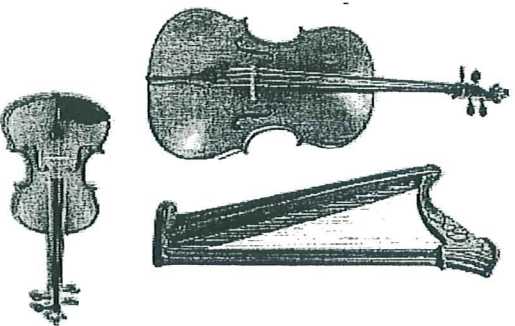
The String family is the biggest in the orchestra. This is because it takes many string instruments to make a sound that balances with the other instrument families. The instruments in the string family are the violin, viola, cello and double bass. They are all made of wood and have a similar curvy shape, but their sizes are different. The violin is the smallest and highest string instrument. The viola, cello and double bass are progressively larger and lower sounding. All stringed instruments have strings stretched over them. They are played with a bow - a long stick that has horsehair attached to it. The bow is pushed or pulled across the strings.

Woodwind instruments look like long sticks. They make sound when a player blows into them. The instruments in the woodwind family include the flute, piccolo, clarinet, oboe, English horn and bassoon. The piccolo and flute are made of metal. All of the others are constructed from wood. The different shape and materials of each instrument help to create its own unique sound. The orchestra often has two, three or four of each woodwind instrument. They often play solos because woodwinds can be heard even when there are many other instruments playing.

The instruments of the brass family are made of brass. Brass players produce sound by "buzzing" their lips together on the surface of the instrument's mouthpiece. Brass family members are the trumpet, the French horn, the trombone and the tuba. The orchestra usually has one or two of each brass instrument, and sometimes more. Brass instruments are loud. For this reason, they are often used in military bands, which play outdoors much of the time. Brass instruments are long metal tubes that flare at one end. Because they are so long, the tubes are bent and coiled into compact shapes so they can be held easily.

The percussion family includes any instrument that is struck, scraped or shaken. Some percussion instruments have no pitch. They produce a sharp sound that provides the rhythmic beat for the orchestra. The drum, woodblock, maraca, tambourine, cymbal, gong and triangle are unpitched percussion instruments. Other percussion instruments have pitch and can play melodies. The xylophone, marimba, glockenspiel, chimes and orchestra bells are pitched percussion instruments. Percussion instruments are probably the oldest instruments. All cultures have instruments that correspond with the instruments of the orchestra and can be bowed, plucked, blown or struck.

# THE ORCHESTRA HAS FOUR FAMILIES:



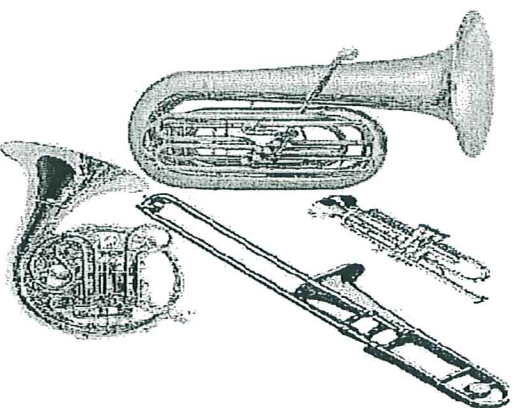
## *Strings*

Violin  
Viola  
Cello  
Double Bass  
Harp



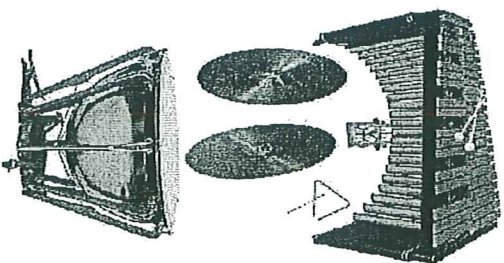
## *Woodwinds*

Flute  
Clarinet  
Bassoon  
Oboe



## *Brass*

Trumpet  
Trombone  
French Horn  
Tuba



## *Percussion*

Xylophone  
Triangle  
Cymbal  
Timpani  
Drums

## Match the Instruments

Draw a line from a picture to the name of the instrument.



Trumpet

Trombone

Bass Drum

Violin/Viola

Cello

Flute

Double Bass

French Horn

Clarinet

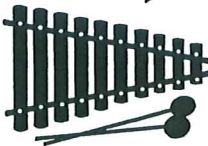
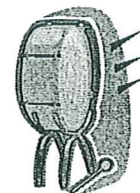
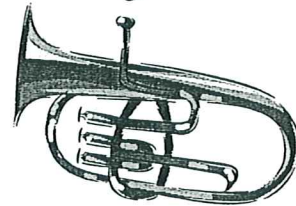
Oboe

Bassoon

Xylophone

Tuba

Timpani



# MAKE YOUR OWN MUSICAL INSTRUMENTS

You can create your own orchestra at home! Make several of these instruments and invite your friends to make music with you. The following activities require adult supervision. Make each instrument special by decorating it with color and sparkles if you so choose.

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## A WOODWIND INSTRUMENT

makes sound when you blow air into it in a special way. Sometimes the player blows across an open hole. At other times, the player uses a reed to blow sound into the instrument. In an orchestra, the woodwinds are the flute, piccolo, clarinet, oboe, English horn and bassoon. Here are some woodwinds you can make at home:

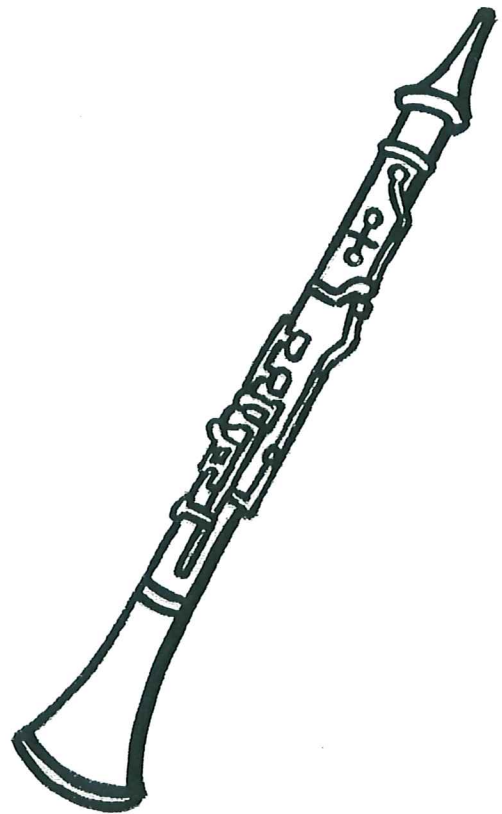
### BOTTLE FLUTE

#### **Materials:**

- Plastic or glass bottles of various sizes

#### **Directions:**

1. Blow across the top of each bottle until you get a “hooty” sound.
2. Notice how the sound changes as the size of the bottles change.
3. Put some water in the bottles and notice how the sound changes with different amounts of water. This instrument demonstrates how flutes and piccolos make sound.



## **COMB CLARINET**

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### **Materials:**

- A small hair comb
- Squares of thin paper cut into 2" x 2" sizes

### **Directions:**

1. Hold the comb so that the teeth point toward you.
2. Use your thumbs to hold a small piece of paper loosely on the comb.
3. Put your lips lightly on the comb and the paper so that they hold the paper on the comb.
4. Blow air across the paper and hear the sound it makes as it vibrates. This instrument demonstrates how clarinets, oboes, English horns and bassoons make sound.

## **STRAW OBOE**

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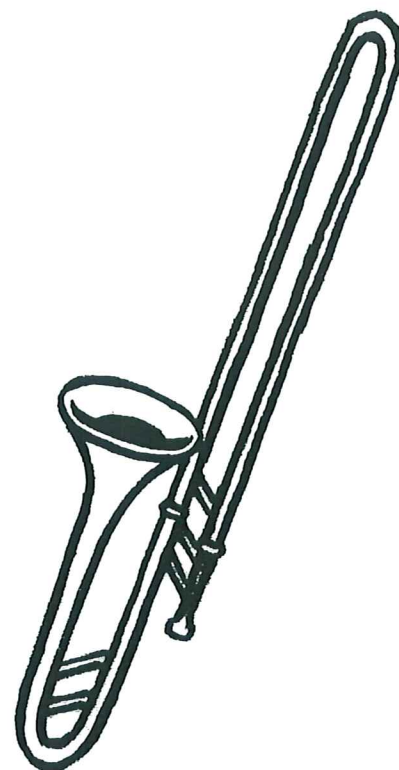
### **Materials:**

- Plastic or paper drinking straws (paper works best)

### **Directions:**

1. Flatten one end of a straw by pinching about  $\frac{1}{2}$  to 1 inch between your fingers.
2. Clip the corners off the flattened end so that it ends in two points.
3. Insert the trimmed end of the straw into your mouth with the flaps just inside your lips.
4. Apply very light pressure with your lips as you blow through the straw. The two flaps or "reeds" will vibrate against each other and produce a tone.
5. Try this with straws of different lengths and note how the pitch will change with the different sizes. This instrument demonstrates how the "double reed instruments", i.e., oboes, English horns and bassoons, make sound.

**BRASS INSTRUMENTS** are usually made of brass. However, you can make a substitute brass instrument out of some items you can find easily around your house. Brass players make their instruments sound by buzzing their lips together into a mouthpiece (some people refer to this sound as a “raspberry”). Practice this buzzing sound with your lips before you continue with the rest of this activity. This instrument demonstrates how trumpets, trombones, tubas and French horns make sound.



### **GARDEN HOSE HORN**

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#### **Materials:**

- For the bell, a pointed plastic cup or small funnel
- An 18"-24" length of garden hose
- For the mouthpiece, a smaller pointed cup, a piece of larger diameter garden hose or a plastic snap-on hose connector
- Duct tape

#### **Directions:**

1. Cut about 1-2" of the pointed tip off a pointed plastic cup. Discard the tip. If you prefer, you can use a small funnel instead. Insert the small end of the plastic cup or the funnel into the length of garden hose. Wrap duct tape around the connection to secure it. This will be the “bell” end of your instrument.
2. Cut about 2" off the tip of another pointed plastic cup. Cut the bottom point off the segment and discard the pointed tip. Insert the smaller end of the segment into the other end of the garden hose. If you prefer to use the snap-on hose connector, insert the smaller end of the connector into the garden hose. Wrap duct tape around the connection to secure it. This will be your mouthpiece for your instrument.
3. Coil the hose so that you can hold both ends as you play.
4. Put your lips into the mouthpiece end and buzz them together. The length of hose will determine how high or low your instrument sounds.

**STRING INSTRUMENTS** all have one thing in common—strings! The strings are stretched across a wooden body. Players use a bow or their fingers to make the strings vibrate and produce sound. The wooden body amplifies the sound (makes it louder). In the orchestra, the string instruments are the violin, viola, cello, double bass and harp. Here is a string instrument that you can make at home:

### **RUBBER BAND GUITAR**

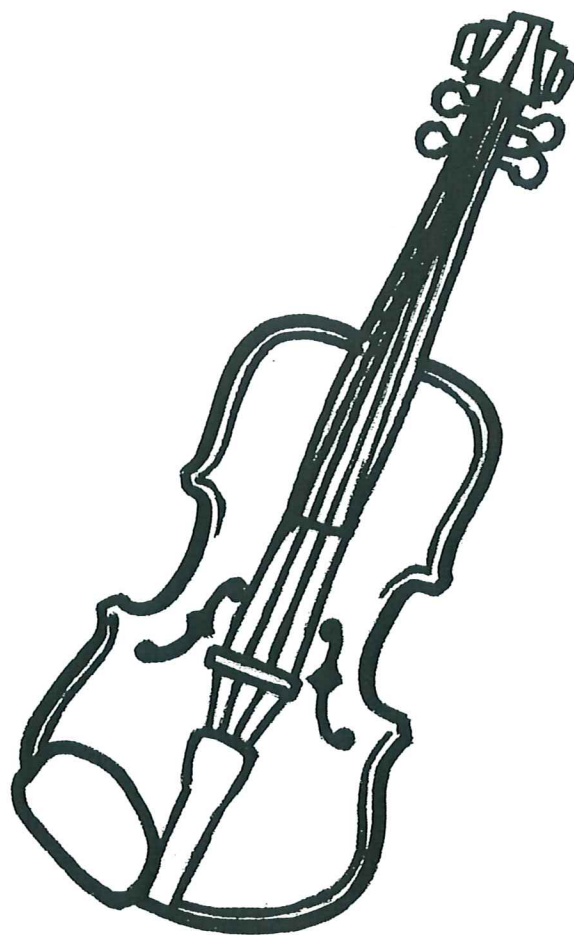
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#### **Materials:**

- A small, sturdy cardboard box
- An assortment of rubber bands that can stretch around the box (choose a variety of lengths and thicknesses)
- A paper towel tube
- Duct tape

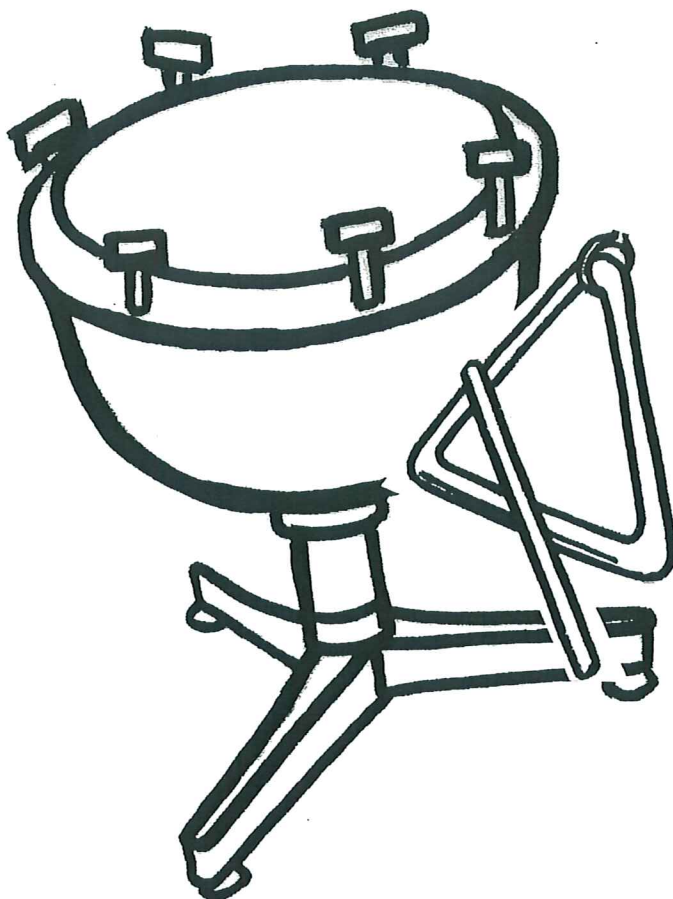
#### **Directions:**

1. Cut a hole about 4 inches in diameter in the top of the box.
2. Stretch 4-6 rubber bands around the box and situate them over the hole, lined up like guitar strings.
3. Slide a pencil in under the rubber bands on one side of the hole.
4. Tape one end of the paper towel tube on the end of the box opposite the side with the pencil. This becomes the “neck” of the guitar.
5. Pluck or strum the rubber bands. Notice how thinner and tighter bands make higher-pitched sounds while thicker and looser bands make lower-pitched sounds.



## PERCUSSION INSTRUMENTS

represent the largest variety in the orchestra. They are beaten, scraped or shaken, and they give the orchestra a mixture of tone colors and rhythms. Most percussion instruments are either solid or have a stretched membrane (thin material) over a hollow shape. They can be either pitched or unpitched. Pitched instruments play specific notes just like the other orchestral instruments. These include the xylophone, marimba, vibraphone, glockenspiel, chimes and timpani to name a few. Unpitched instruments produce a sound without a specific note, like the sound you make when you hit a table. These include the many kinds of drums, maracas, castanets, claves, tambourine and cymbals among others. Here are some percussion instruments you can make at home:



### MARACAS

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#### Materials:

- Small lidded containers such as yogurt containers, baking-powder cans, specialty-coffee tins, butter containers, drink bottles
- Dried beans, seeds, uncooked rice or pasta, nuts or other such loose items
- (Optional) Small dowels cut to 6-8" lengths (or a pencil)
- Duct tape

#### Directions:

1. Partially fill the containers with the small dried items
2. Drill or cut an opening in one end of the container and push in the dowel or pencil. (Do this if you wish to have a handle. Otherwise, the maracas can be held in the hand without a handle.)
3. Use duct tape to secure the lid and the handle.



## **BOTTLE-CAP TAMBOURINES**

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### **Materials:**

- A strong, Y-shaped tree branch (hand sized), preferably hardwood
- 10-15 Metal bottle caps
- Strong wire
- Hammer and a nail

### **Directions:**

1. Decorate the tree branch first if you plan to do so.
2. Remove the rubber liners from the bottle caps by having an adult heat them for a few minutes on a grill or in the oven. (This isn't required, but it does greatly improve the sound.)
3. Flatten the caps with a hammer.
4. Use the nail to punch a small hole in the center of each cap.
5. Thread the caps onto the wire and string it tightly between the arms of the Y.

## **DRUM**

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### **Materials:**

- An empty oatmeal or coffee can (sturdy)
- A sheet of heavy plastic, like a plastic garbage can or a large balloon
- Ruler
- Marker
- Scissors
- Large rubber band
- Spoon, stick or pencil

### **Directions:**

1. Measure the diameter of the can.
2. Mark a circle 2-3" larger in diameter on the sheet of plastic and cut it out.
3. Stretch the plastic tightly over the can and secure it with the rubber band. If you wish to make a simpler version of a drum, use the plastic lid that came with the oatmeal or coffee.
4. Use the spoon, stick or pencil to hit the drum.

## **CYMBALS**

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### **Materials:**

- Two similar-sized pot covers
- Yarn or ribbon

### **Directions:**

1. Tie the ribbon or yarn around the handles of the pot covers.
2. Loop the ribbon or yarn around the wrists.
3. Play by striking the two covers together.

## **COPPER-PIPE GLOCKENSPIEL**

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### **Materials:**

- A 10-foot length of  $\frac{1}{2}$ -inch copper pipe
- Yardstick
- Pipe-cutter (you can use a tubing cutter with no exposed blades or a hacksaw)
- 2 Strips of foam rubber, each about 20" long

### **Directions:**

1. Measure and cut the pipe to the following lengths in inches: 11,  $10\frac{1}{4}$ ,  $9\frac{3}{4}$ ,  $9\frac{1}{2}$ ,  $8\frac{7}{8}$ ,  $8\frac{1}{2}$ ,  $7\frac{7}{8}$ ,  $7\frac{5}{8}$ . (Start with the longest first. If you make a mistake, you can cut them down to a shorter size and not waste the pipe.)
2. Lay the strips of foam rubber parallel to each other on a flat surface.
3. Arrange the pipes in order from the shortest to the longest. Lay them across the foam rubber like the ties of a train track.
4. Experiment with various types of strikers to get the best sounds, then begin playing.

## **RAIN STICK**

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### **Materials:**

- A mailing tube approximately 1½-2 inches in diameter (preferably with stoppers on each end)
- At least one pound of nails the same length as the diameter of the mailing tube
- A hammer
- Wide plastic tape (only if the tube does not have its own stoppers on the end)
- Funnel
- Small dried objects such as rice, beans, popcorn kernels, pasta
- Decorative origami paper, wrapping paper, contact paper or colored electrical tape

### **Directions:**

1. Drive the nails into the tube at random intervals and locations on the tube, using all of the nails. Be sure to drive them straight through from one side of the tube to the other. If the ends poke out, you can push them back in and adjust the angles by hand.
2. Seal up one end of the tube, either with the stopper provided or with wide plastic tape.
3. Wrap the tube in the decorative paper or tape chosen. Not only does this create a festive look, but it keeps the nails secure in the tube as well.
4. Experiment with small amounts of the various choices provided for the contents. Use a funnel to minimize spilling. Hold one hand over the open end to keep the contents inside as the different sounds are explored.
5. Once a decision is made about the contents, put enough of the contents into the tube to get the desired sound. Then seal the other end to keep the contents from spilling all over your floor.
6. To play the rain stick, turn it slowly on its end and listen to the sounds as the contents roll from one end to the other, making contact with the nails on the way down.

# Web Sites and Other Music Resources for Parents, Teachers and Children

## Interactive Web Sites for Children

<http://www.playmusic.org/>

Find a music teacher, try writing your own music, find answers to FAQ's, meet real-life musicians and follow links to other great music sites.

<http://www.creatingmusic.com/>

Creatingmusic.com is a creative place for kids to compose music and play with musical performance, music games and music puzzles.

<http://www.childrensmusic.org/>

Music resources and interesting musical links for kids, parents, teachers and performers.

[www.sphinxkids.org](http://www.sphinxkids.org)

Learn about instruments, explore minority composers and musicians, create your own Rhythm Band and visit the Orchestration Station.

<http://library.thinkquest.org/22673/orchestra.html>

This interactive guide to the symphony orchestra gives a basic tour of each orchestral instrument. Listen to sound clips as you explore.

## Other Resources to Introduce Children to the Orchestra

<http://www.friendshiphouse.com/>

This site is an excellent online resource for musical gifts, multimedia items and other teaching aids to enhance the study of music.

*The Orchestra*—This video features Peter Ustinov as the narrator. In 40 minutes, the video introduces the instruments and demonstrates how they blend together to make the sound of an orchestra. There is also a book and a CD that cover the same material. (ASIN: 6301788524—Newsound Studio)

*Tubby the Tuba and Friends*—This classic video introduces children to the instruments of the orchestra through the adventures of Tubby the Tuba as he travels the world to find his own tune. Tubby will also be featured in the March 5, 2006 ASO Family Concert this season. (ASIN: 6303521150—Sony Wonder Studio)

*The Story of the Orchestra* by Robert Levine—Orchestra Bob leads the reader on a journey to learn about the orchestral instruments, famous composers and some well-known symphonic music. An accompanying CD features over an hour of orchestral favorites. (ISBN: 1579121489—Black Dog & Leventhal Publishers)

*The Story of the Incredible Orchestra* by Bruce Koscielniak—This book takes the reader through the history of music and musical instruments, and shows how they evolved into to modern orchestra. (ISBN: 0395960525—Houghton Mifflin)

*Meet the Orchestra* by Ann Hayes—This orchestra is full of animals who play instruments. As you meet each player, you learn about his or her instrument. When they are all gathered, the conductor takes the podium for a lively performance. (ISBN: 0152002227—Voyager Books)

*The Young Person's Guide to the Orchestra* by Anita Ganeri—This book is based on Benjamin Britten's famous work, *The Young Person's Guide to the Orchestra*. Designed as a reference book that covers a variety of musical styles and instruments, it is filled with beautiful photographs illustrating the text. An accompanying CD features Britten's music performed by the London Symphony Orchestra and narrated by actor Ben Kingsley. (ISBN: 0152013040—Harcourt Children's Books)

*Ah, Music!* by Alikei—This book explores all areas of music—its history, its elements (rhythm, melody, pitch, harmony and tempo) and the importance of music to the human spirit. (ISBN: 0060287195—HarperCollins)

## Selected Children's Story Books with a Musical Theme

*Mole Music* by David McPhail—Mole is a quiet tunnel digger who lives underground. But his life changes when he first hears someone playing a violin. From that point on, he finds a new sense of magic as he, too, learns to play the violin and make beautiful music. (ISBN: 0805067663—Henry Holt and Co.)

*The Bat Boy and His Violin* by Gavin Curtis—It is 1948 and young Reginald's father manages the Negro National League's last-place team. Papa asks Reginald to serve as bat boy, but soon learns that his son is not gifted with athletic skills. However, Reginald's skills with the violin prove to be just what the dugout needed. As he plays, his music inspires the players and the team begins to win. (ISBN: 0689800991—Simon & Schuster Children's Publishing)

*I Know a Shy Fellow Who Swallowed a Cello* by Barbara S. Garriel—In a takeoff on the old song "I Know an Old Lady Who Swallowed a Fly", this book features a man with a large "appetite" for music. After he swallows an assortment of instruments, he coughs them up in reverse, creating quite a musical ensemble. (ISBN: 1590780434—Boyd's Mills Press)

*My Family Plays Music* by Judy Cox—A young African-American girl is growing up in a very musical extended family. Though her relatives play in different genres, this girl can always play along with each of them, keeping the beat with an appropriate percussion instrument. She even joins her young niece on the floor to drum on pots and pans. (ISBN: 0823415910—Holiday House)

*The Remarkable Farkle McBride* by John Lithgow—Farkle is a young boy with a strong interest in music. Each year he takes up a new instrument, only to tire of it and turn to another. When he realizes that the entire orchestra is, in fact, his instrument, he finds his true calling as a conductor. (ISBN: 0689833407—Simon & Schuster Children's Publishing)

*M is for Music* by Kathleen Krull—This delightfully illustrated alphabet book takes the young child on a musical exploration to unexpected places ranging from Elvis and the Beatles to Klezmer, jazz, orchestras and Zydeco. (ISBN: 0152014381—Harcourt Children's Books)

*Polly and the Piano* by Carol Montparker—This book and CD chronicle the story of a young pianist as she prepares for her Carnegie Hall debut. Written in the voice of her pet dog, the story details the path from the practice room to the concert stage. (ISBN: 157467093X—Amadeus Press)

*Zin! Zin! Zin! A Violin* by Lloyd Moss—With phrases like "The STRINGS all soar, the REEDS implore, / The BRASSES roar with notes galore. / It's music that we all adore. / It's what we go to concerts for.", this book is a visual and auditory tribute to classical music and its performers. (ISBN: 0671882392—Simon & Schuster Children's Publishing)

*Molly and the Sword* by Robert Shlasko—Young Molly is a brave little girl who lives through some hard times in her village. When she discovers the violin, she happily settles into her music and puts the hard times in the back of her mind. But she discovers that her bravery will be very useful when she is offered the chance for an important performance. (ISBN: 0974507741—Jane & St Pub Ltd)