

*This lesson kit contains activities designed to help teachers prepare their students for a tour and workshop at historic RCA Studio B. Four pre-visit activities focus on RCA Studio B's historical significance, studio acoustical design, and the technology of recording. Post-visit activities engage students in reflecting on their experiences at historic RCA Studio B and examining their own music collections. These activities assist teachers in meeting state standards in Language Arts, Music, and Science for students in grades 6-12. All curricular connections (indicated numerically) are based on the Tennessee state curriculum standards for these grades.*

*During the workshop, students learn about RCA Studio B's historical significance, studio design, and the three basic phases of recording – tracking, mixing, and mastering. Students also explore the various roles played by persons involved in the recording process, as students themselves participate in the mixing of a recording.*

## WHAT IS THE HISTORICAL SIGNIFICANCE OF RCA STUDIO B?

Studio B is the oldest surviving major-label recording studio in Nashville, Tennessee. This studio played a major role in establishing Nashville's identity as a recording center. When RCA Studio B opened, it was the first major-label recording studio in the city and was only the second major studio on what is now known as Music Row. Because of the success of facilities such as RCA Studio B, more labels began opening studios in the area. Today, over one hundred recording studios or entertainment companies are present on Music Row.



★ CHET ATKINS, MUSICIAN AND PRODUCER ★  
AT HISTORIC RCA STUDIO B

The RCA Victor Company opened Studio B in 1957. It quickly became a facility in which studio engineers could test new innovations in sound recording, such as the use of reverberation effects and stereophonic recording and mixing.

Nashville music producers and musicians made major contributions to the development of the "Nashville Sound" at RCA Studio B. The Nashville Sound was a style of performing and arranging that featured smooth-singing vocalists such as Jim Reeves and Eddy Arnold. In addition to a traditional rhythm section consisting of drums, upright bass, piano, and guitars, producers added elements such as string and horn sections, backing vocal groups, vibraphones, and Hammond organs to support the featured singers.

Another innovation used at RCA Studio B was the Nashville Number System, a musical shorthand used by studio session musicians and vocalists. Using this system, in which numbers designate chords, musicians could quickly learn chord progressions, thus making recording highly efficient. Still in use daily in Nashville recording studios, the Nashville Number System is also used by musicians in recording facilities in New York and Los Angeles.

In the twenty years RCA Studio B was in operation, over one thousand Top Ten hits were recorded there, making it one of the most successful studios in recording history.

### WHAT IS INVOLVED IN MAKING A RECORD?

During the tracking phase, a group of musicians, who have been hired by a producer and artist, are recorded by the recording engineer as they perform a song. The instruments are recorded onto individual channels, or "tracks," of a multi-channel tape. After the producer and artist approve the performance, the recording engineer then blends, or "mixes," the tracks onto a master tape. The master tape is then taken to a "mastering studio," which prepares the tape for manufacture.

# 1 COMPARING RECORDING TECHNIQUES THROUGH TIME

## Tennessee State Curriculum Standards:

### Music

**6.2** Analyze aural examples of a varied repertoire of music representing diverse genres and cultures.

**7.1** Evaluate the quality and effectiveness of works of music.

**9.2** Examine the evolution of American musical genres and cite well-known musicians associated with them.

### Science

**Physics 3.5** Explore the characteristics and properties of sound.

**Objective:** Students will listen to a single song recorded in three different time periods to gain an understanding of the evolution of recording technology from 1950 through the present.

**Prep Time:** Ten minutes to set up CD player and cue up CD

**Materials:** CD player, Lesson Kit CD

## 1. Share the following with your students:

Techniques used in recording music have a great impact on the sound of the finished product. Through the years, as technology has evolved, the sound of recorded music has evolved as well. In this activity, listen to a song as it has been recorded in various time periods, to identify the similarities and differences.

## 2. Listening

Listen to each of the versions of “Are You Lonesome Tonight?” listed below and use the questions that follow for class discussion.

- Al Jolson version, recorded April 28, 1950, at Decca Studios, Los Angeles. The session lasted from 3:15 to 4 p.m. The entire ensemble was recorded live to a single-track, or “mono,” tape recorder, by blending a few microphones through a small mixing console.
- Elvis Presley version, recorded April 4, 1960, at historic RCA Studio B. This version was recorded very late in the evening. As with the Al Jolson version, the musicians and vocalists were recorded live, at the same time. The song was recorded by blending individual instrument and vocal microphones through a mixer to a mono tape recorder. The song also featured a reverberation effect on the vocals.
- Bryan Ferry version, recorded 1991 at Bryan Ferry’s personal studio in England. The instruments were individually recorded to separate tracks of a multi-track recorder. After all of the instruments and vocals were recorded, the engineer blended (“mixed”) the recorded material through a large recording console and added special echo and reverberation effects.

## 3. Discussion

- How are the versions similar? Vocal style? Instrumentation?
- How would you describe the style/genre of each version?
- How are they different?
- How do you think the different recording methods might affect the sound of each recording?
- What do you like about each version?
- What do you not like about each version?

## 2 | SOUND WAVES AND SOUND CONSTRUCTION

### Tennessee State Curriculum Standards:

Physics 3.3 Understand wave mechanics.

3.5 Explore the characteristics and properties of sound.



★ DOLLY PARTON AND PORTER WAGONER ★  
AT AN RCA STUDIO

**Objective:** Students will examine the way that different materials are arranged in a recording studio to affect the movement of sound through the studio and the recordings created in that space.

**Prep time:** None

**Materials:** tape recorder, found objects in classroom, Lesson Kit photos

Sound is the key factor in recording music. When an artist or musician sings or plays an instrument, sound waves are generated. The interior spaces of recording studios are designed to control sound waves in an effort to achieve the best possible recorded sound. The size and shape of a studio and the materials used in building it can greatly influence the sound produced.

### 1. Activity

Direct the students in recording themselves in a variety of settings using instruments made out of everyday objects (pencils, pens, tin cans) to accompany their own clapping and singing. Possible spaces for recording might include a classroom, school auditorium, gym, hallway, bathroom, or outdoors. Next, experiment with the placement of objects and surfaces in a room. For example, students could record themselves in the classroom when it is filled with people and when it is empty, or they could record themselves with the desks in their usual places or with the furniture removed to create an open space in the center of the room. Then, add to the room fabric items such as blankets or quantities of jackets or other material that might absorb sound. Encourage students to record themselves at different distances from the microphone.

**2. Listen to students' recordings in class. Use the following questions to lead students in a class discussion:**

- What did you notice about the sound quality of each recording?
- How does the sound quality of each recording sound similar or different?
- What do you think are reasons for the differences?
- Note that some of the instruments (or voices) sound louder than others. What would produce this effect?
- How did the size of each room affect the sound?
- How did the building materials of each room (tile vs. carpet, etc.) affect the sound?

- How was the sound affected by rearranging the objects in the room?
- How was the sound affected by changing the distance of the microphone from the sound being recorded?
- How was the sound affected by adding blankets or other fabric items to the room?
- Which room did you like best for recording? Explain.
- Based on what you have learned, what materials would you incorporate in designing a recording studio?

### 3. Share the following information with your students:

Historic RCA Studio B is a small recording space, measuring 40 feet wide, 25 feet deep, and 13 feet high. Take measurements of your classroom and compare its size to historic RCA Studio B. For much of historic RCA Studio B's history, all of the musicians and vocalists performed in the same room, at the same time. Controlling sound waves was very important. If the room or the microphones were not arranged properly, sound waves would travel across the room and be picked up by other microphones. Engineers wanted to minimize this leakage, or "bleeding" of sound, because it might drown out other performers, or create unwanted echo effects. In the studio's early days, baffles, or moveable walls, were the main way of breaking up sound waves. Baffles were placed between singers and / or instruments to

prevent one performer's sound from bleeding into another performer's microphone. (Show photo of the baffles from historic RCA Studio B to your students.)

Engineers often had to be creative in finding ways to control the sound waves. Blankets were often hung over baffles to increase the sound absorption. Recording engineers often placed rugs on the floor on which musicians and vocalists stood while performing. One solution created by engineer Bill Porter was to hang acoustical tiles from the ceiling with wire to further break up sound waves.

In the studio's later years, angled walls were added to further assist with the sound waves. (Show interior photos of historic RCA Studio B to your students.) The angled walls deflected the sound waves toward the ceiling, and away from the microphones. Notice the angled walls and the acoustical tiles in the photos.

### 4. Further Discussion

- Why would it be important to have equipment like baffles in a studio?
- Why would blankets be one way of absorbing sound?
- Can you think of other objects that could serve the same function?
- If you were designing a recording studio, what materials would you choose to include? Or not to include? Please explain your choices.

### 3 ROCKABILLY AND THE NASHVILLE SOUND

#### Tennessee State Curriculum Standards:

##### Music

6.2 Analyze aural examples of a varied repertoire of music representing diverse genres and cultures.

7.1 Evaluate the quality and effectiveness of works of music.

9.2 Examine the evolution of American musical genres and cite well-known musicians associated with them.



★ THE EVERLY BROTHERS  
AT HISTORIC RCA STUDIO B ★

**Objective:** Students will use analytical listening skills to compare and contrast two forms of music, rockabilly and the Nashville Sound, that were being recorded between 1957 and 1977, when historic RCA Studio B was a commercially active studio.

**Prep Time:** Ten minutes to set up CD player and cue up CD

**Materials:** CD player, Lesson Kit CD, paper, and pencil

1. Share the following information with your students:

Born in the South during the early 1950s, rockabilly is a blend of several styles of American music: western swing, blues, country, bluegrass, and southern gospel. Rockabilly music is generally distinguished by a strong 2/4 rhythm with emphasis on the second or “back” beat of each measure, driving rhythm guitars (acoustic and electric), stinging electric lead guitars, and the use of “slapback” tape echo on the vocalists. The “slapback” tape echo effect was created by combining the original sound of the vocalist with a version of the sound that had been delayed through a separate tape machine. Famous rockabilly artists include Elvis Presley, Carl Perkins, and Wanda Jackson.

Partly as a response to rockabilly, the Nashville Sound also emerged during the 1950s. The term “Nashville Sound” describes a pop-oriented style of country music. The Nashville Sound was a style of performing and arranging that featured smooth-singing vocalists such as Jim Reeves and Eddy Arnold. In addition to a traditional rhythm section of drums, upright or electric bass, piano, and guitars, producers added elements like string and horn sections, backing vocal groups, vibraphones, and Hammond organs to support the featured singers and lend pop touches to their recordings. Historic RCA Studio B played a critical role in the development of the Nashville Sound through the work of producer Chet Atkins, an innovative staff of recording engineers, and a corps of talented studio musicians.

## 2. Listening Activity and Discussion

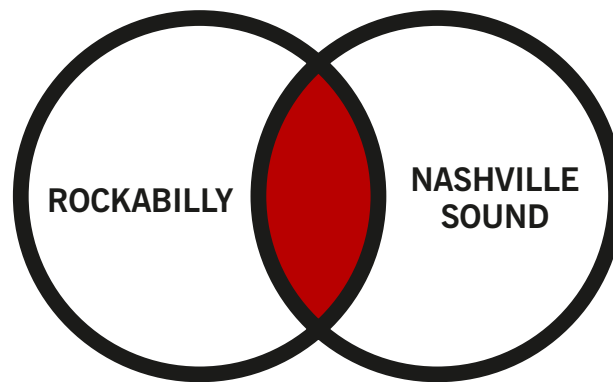
Play the song selections listed below, and lead your students in discussion of each recording using the questions provided.

1. "Rock Your Baby," Wanda Jackson, recorded 1958 at Capitol Tower, Hollywood (Rockabilly).
2. "Here Comes My Baby," Dottie West, recorded 1964 at historic RCA Studio B (Nashville Sound).
3. "Blue Suede Shoes," Carl Perkins, recorded 1955 at Sun Studios, Memphis (Rockabilly).
4. "He'll Have to Go," Jim Reeves, recorded 1959 at historic RCA Studio B (Nashville Sound).

### Discussion Questions

- How many people do you think are singing?
- What instruments do you hear?
- Do you like this song? Why or why not?
- What musical styles are represented in each song?
- How does the song sound similar to or different from something you might hear on the radio today?
- Why do you think musical styles evolve over time?
- What factors do you think cause these changes?

**Compare and Contrast:** Create a Venn diagram on the board or on individual worksheets for your students. Ask them to identify the similarities and differences between rockabilly and the Nashville Sound.



## 4 | WORK ROLES AT HISTORIC STUDIO B

### Tennessee State Curriculum Standards:

#### Language Arts

- 1.11 Read independently for a variety of purposes.
- 1.12 Experience and explore the elements of various literary and media genres.
- 2.03 Compose drafts of written works.
- 2.13 Locate and analyze information to prepare written works and presentations.

#### Computer Technology

- 6.0 Use technology as a tool to conduct and evaluate research and to communicate effectively information and ideas.



FLOYD CRAMER  
AT HISTORIC RCA STUDIO B



**Objective:** Using the Internet and other research materials, students will research a particular artist, musician, producer, or engineer who worked at historic RCA Studio B to understand the different professional jobs involved in the daily activities of a recording studio.

**Prep Time:** none

**Materials:** paper and pencil

1. Share the following information with your students:

Historic RCA Studio B was a place where many creative individuals worked together to record innovative music. This collaborative effort included producers, artists, engineers, musicians, and backing vocalists. Each team member made an important contribution to the recording session. Working together was very important because all the musical parts were generally recorded at one time, rather than one track at a time over extended periods as they often are today. If something was not done properly, the entire song had to be recorded again with all the musicians. Today it is possible to re-record only the instrument or vocal track in which the mistake was made.

### A BRIEF OVERVIEW OF EACH ROLE AT HISTORIC RCA STUDIO B:

**Producer:** Oversees the session; works with the artist to choose the music; hires the studio musicians and backing vocalists; schedules the studio time; and gives creative direction to engineers, artists, and musicians.

**Engineer:** Operates the equipment in the studio, including recording the instruments and vocalists; blends (“mixes”) the recorded parts together to form the final version of the music.

**Artist:** The featured performer at the recording session. Typically, the artist signs a recording contract with a record label, which then hires a producer to record the artist.

**Studio Musician:** A “freelance” performer who plays an instrument or sings in recording sessions.



**2. Ask students to select an individual from the following list and research that person's life and career. Information about each individual can be found at [countrymusichalloffame.com](http://countrymusichalloffame.com), "student resources" link.**

- Eddy Arnold: artist
- Chet Atkins: producer / musician
- Floyd Cramer: artist / studio musician
- Everly Brothers: artists
- Buddy Harman: studio musician
- Dolly Parton: artist / songwriter
- Bill Porter: engineer
- Elvis Presley: artist
- Charley Pride: artist
- Steve Sholes: producer / record executive
- Velma Smith: studio musician
- Dottie West: artist

**3. Ask your students to write an essay about the individual researched and his or her role in the recording process. Questions for your students to consider as they compose their essays include the following:**

- From what city and state did the person come?
- How did the person become interested in music?
- How did the person get started in the music business?
- What job did he or she have in the music business?
- What did the person's job responsibilities include?
- Why was that job important?
- How did the person's job affect everyone else who worked at the studio?

- Why was it important for the person to work well with others in the studio?
- What were some of the songs the person produced or recorded?
- For what personal accomplishments is the person well known?

#### **4. Discussion**

Ask students to share their research with the class and discuss the following questions.

- How are the recording industry jobs you learned about similar or different?
- Why are the jobs important in producing music?
- What recording industry job did you find most interesting? Why?

# 1 | REFLECTING ON THE HISTORIC RCA STUDIO B EXPERIENCE

## Tennessee State Curriculum Standards:

### Language Arts

2.02 Write for a variety of audiences and purposes.

2.04 Compose drafts of written works.

2.10 Write expressively in order to develop an effective writing style.

**Objective:** Students will write essays reflecting on their trip to historic RCA Studio B as a means of processing what they learned during their visit.

**Prep Time:** none

**Materials:** paper and pencil

1. Ask students to write a paper reflecting on their experience at historic RCA Studio B, considering the following questions:

- What were the three most memorable details you learned about historic RCA Studio B's history?
- Did you learn anything about historic RCA Studio B's history that surprised you? Explain.
- Describe the three basic stages of music recording – tracking, mixing, and mastering.
- Did you learn anything about the recording process that you found surprising? Explain.
- What was your favorite part of your experience at historic RCA Studio B?

2. Encourage your students to share their ideas with the class. Please send these writings to the museum. We are always interested in what students gain from their experiences in our programs.

### Mail to:

School Programs Coordinator

Country Music Hall of Fame and Museum

222 Fifth Avenue South

Nashville, TN 37203

## 2 | LEARN MORE ABOUT YOUR OWN CDS

### Tennessee State Curriculum Standards:

#### Language Arts

**1.08** Use active comprehension strategies to derive meaning while reading and to check for understanding after reading.

**1.11** Read independently for a variety of purposes.

**1.12** Experience and explore the elements of various literary and media genres.

**1.13** Develop and sustain a motivation for reading.

**2.13** Locate and analyze information to prepare written works and presentations.

**Objective:** Students will look carefully at their own collections of CDs to learn more about the people and places involved in creating a CD and to identify trends in recording.

**Prep Time:** none

**Materials:** paper and pencil, CDs from students own collections

1. Invite your students to bring in CDs from home. This activity could also be completed at home.

2. Ask your students to read their CD jackets and answer the following information. Students can answer these questions in chart form and compare various CDs to one another.

- How would you describe the style of music represented in this CD?
- What is the artist or band's name?
- In what year was it recorded?
- In what city or cities was it recorded?
- Who was the recording engineer?
- Who mixed the music?
- What other job responsibilities were involved in making this CD happen?
- What musical instruments are featured on this CD?
- How many vocalists are featured on this CD?
- As you look at several CDs, what patterns do you notice about where and by whom the music was recorded?
- How do these details connect with what you learned during your workshop at historic RCA Studio B?

3. Ask students to share their findings with the class.



HONOR THY MUSIC®



★ EXTERIOR OF HISTORIC RCA STUDIO B, CIRCA MID-1960'S ★

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