# **Skoog: Remix a Song**

\*Sections with blue text denote the structure and are fixed\*

\*Black text is editable\*

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INSERT: Pink highlight indicates PDF/document insert (INSERT: TITLE:)

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### **AoE**

Communication and Media Arts

### **Product Line**

SmartLab HQ

### **Project Starter Title**

Skoog: Remix a Song

**Related Project Starters**

**Skoog: Compose (4th Grade)**

**Activity Description:**   
Learn to play and compose music with Skoog. Count the beats represented in a song as whole numbers and fractions. Then, compare and add the beats.

**The Challenge:** Your challenge is to use Skoog to play musical notes, then compose a song using whole number and fractional beats. You will add the whole number and fractional beats, and then decompose each line of music into a sum of fractions. Skoog is a customizable electronic musical instrument and programmable control device.

**Math Standards:**

[CCSS.MATH.CONTENT.4.NF.A.2](http://www.corestandards.org/Math/Content/4/NF/A/2/)

Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

[CCSS.MATH.CONTENT.4.NF.B.3.B](http://www.corestandards.org/Math/Content/4/NF/B/3/b/)

Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: 3/8 = 1/8 + 1/8 + 1/8 ; 3/8 = 1/8 + 2/8 ; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.

### **Technology**

Skoog

### **Grade Level**

5th Grade

### **Math Standards**

5.NBT.A.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.

5.NBT.B.7 Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.

5.NF.B.4 Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

### **Activity Description**

Use Skoog to explore notes, beats and time sigatures. Then, choose a song to remix.

### **Project Description**

Students will learn about how music and math are closely related by learning about notes and fractional beats. They will then use Skoog to choose a song and will change the time signature by a factor of 1.5. Then they will remix their chosen song using the new time signature by writing new beats that will give them the total sum of the beats in the time signature.

# **The Challenge – Skoog: Remix a Song**

## **The Challenge**

Your challenge is to use Skoog to explore notes, beats and time sigature. Then, choose a song and remix it by changing its time signatures. You will use fractions and whole numbers to represent notes and remix it. You’ll rewrite it using Skoog notation.

INSERT:Skoog\_Skoog\_CLS TITLE: Skoog device

## **What I’ll Learn**

* I CAN use Skoog to remix a song.
* I CAN count beats as whole numbers and fractions.
* I CAN use decimal notation for fractions.
* I CAN multiply fractions by whole numbers.
* I CAN add fractions with like and unlike denominators.

## **Stuff I’ll Need**

* Skoog
* SmartLab iPad with SkoogMusic App
* Skoog Song Book

# **Assignment- Explore –** **Skoog: Remix a Song**

Explore Skoog and its tools. Answer the following questions:

1. *How might you use a Skoog?*
2. *Think about music, how do you know a song’s rhythm?*
3. *How do you think musicians know how songs are supposed to sound?*
4. *Why are the buttons on the side different colors?*

# **What You Should Know – Skoog: Remix a Song**

### **Important Vocabulary**

* **Numerator** - the top number in a fraction and it represents the number of parts out of the whole number (denominator). In the fraction ½ , 1 is the numerator
* **Denominator –** a bottom number in the fraction and it represents the total number of parts that make up the whole. In the fraction ½, 2 is the denominator
* **Fraction –** part(s) of a whole
* **Mixed Number** – a whole number and a fraction written together
* **Improper Fraction –** a fraction in which the numerator is greater than the denominator such as.
* **Decimal Notation –** a way to write a number that is between two whole numbers - a string of digits that are separated using a decimal point
* **Place Value** – the value of a digit based on its place in the number
* **Clef-** the symbol used to indicate which notes are represented by the lines and spaces on a stave
* **Stave-** a set of five horizontal lines and spaces that notes are written on
* **Rhythm** – the pattern of long and short sounds in a song
* **Pitch** – how high or low a note sounds

**Heading:** Musical Notes

**Text:** Notes are the building blocks of how we write music. They let you know how many beats you have and in what pitch. There are four basic types of notes: whole notes, half notes, quarter notes, and eighth notes. It can be a little confusing at first because after whole notes, notes are named with fractions...but don’t equal fraction beats. This is because they are named in reference to the whole note and the whole note has 4 beats. Therefore, each note is that fraction of the whole note. Think about a half note. It is half of a whole note which has 4 beats. What is half of 4 beats? 2 beats!

INSERT: 1x5 TABLE

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Whole Note  𝅝  4 beats | Half Note  𝅗𝅥  2 beats | Quarter Note  𝅘𝅥  1 beat | Eighth Note  𝅘𝅥𝅮  beat | Sixteenth Note  𝅘𝅥𝅯  beat |

The table above represents the most basic notes. There are more complicated notes that can give you different numbers of beats such as 3 beats or 1 and a half beats, but don’t worry about those right now.

**Heading:** Music Notation

**Text:** When you write music you do it using a special writing system called music notation. Music notation is a universally accepted way to write music so that others can read, understand, and play it. When using music notation, you write your music using notes on 5 horizontal lines called a stave. Each line on the stave and the spaces in between represents a specific pitch. Pitch is how high or low a note sounds when you hear it. You place your note on the line or space that represents the pitch of your note. Music is separated into measures, similar to how writing is separated into paragraphs. At the front of the stave you will also find a clef. The clef lets the reader know the specific pitch of the notes contained in the music. There are 4 basic clefs: treble, alto, tenor, and bass. Music notation also includes the time signature which you will learn more about below.

INSERT: Skoog\_LabeledMusic\_CLS TITLE: measure of music with parts labeled

**Heading:** Skoog Notation

**Text:** When you play music with Skoog you use a similar notation called Skoog Notation. Skoog Notation is used specifically for the Skoog device so that users can play songs. It uses colored squares and rectangles to show the duration (beats) of notes. With Skoog Notation, the longer the colored rectangle, the longer the note (more beats it has) and vice versa.

INSERT:Skoog\_SkoogNotation\_CLS TITLE: Skoog Notation beat examples

Skoog Notation lets you know what pitch the notes are in by using a key located in the top left. It separates the music by lines rather than measures. For more information on Skoog Notation visit the INSERT: https://skoogmusic.com/support/creating-skoog-colour-tracks/ TITLE: Skoog Notation webpage

**Heading:** Time Signature

**Text:** Time signature is found at the beginning of a piece of music and tells you how to organize the rhythm of the music. You can think of a time signature as a fraction, because it is very similar. It has 2 numbers: 1 on top, the numerator, and 1 on the bottom, the denominator. For this activity, we are only going to focus on the numerator. The number on the top lets you know how many beats each measure of music is going to get. The bottom number tells you the type of note that gets the beat. So, if you have a 4/4 time signature, the top number tells us that there are 4 beats per measure. If your time signature is ¾ then you have 3 beats per measure. Each time you write a measure of music, the beats of the notes will add up to the numerator in your time signature. Look at the following measure of music:

INSERT: Skoog\_TimeSignature\_CLS Title: a measure of music representing that notes add up to time signature

The time signature is which means you have 4 beats per measure. If you add up the beats of your notes, you get ½ + 2 + 1 + ½ = 4. The same as your time signature! It’s as easy as adding fractions. *Do you notice that music and math have a lot in common?*

**Heading:** Remix

**Text:** A remix is when a musical producer takes an original song or piece of music and changes it in some way with the permission of the original artist. Producers remix songs many different ways from changing the tempo or beat, adding effects, or even having a musical artist change the lyrics and do the vocals. In your challenge, you are going to be remixing the song by changing the time signature. This will change the pattern of the rhythm.

**Heading:** Multiplying Fractions

**Text:** Multiplying fractions is very similar to multiplying whole numbers. It does not matter if the numerator and the denominator are the same, you just multiply straight across. You will multiply the two numerators and then the two denominators and don’t forget to simplify your answer.

INSERT: Skoog\_MultiplyingFractions\_CLS TITLE: example of multiplying fractions

Sometimes, you may have to multiply fractions by a mixed number. To do this you first have to change your mixed number into an improper fraction. Recall that your denominator tells you how many parts you need to make a whole. The whole number in your mixed number tells you how many wholes you already have and the numerator tells you how many parts of the whole you have.

INSERT: Skoog\_MixedNumberLabeled\_CLS Title: mixed number with parts labeled

To convert a mixed number to an improper fraction you need to know the number of parts you have in total. To help you do this, follow these steps:

1. Multiply your whole number by your denominator.
2. Add that number to your numerator.
3. Write your improper fraction using the same denominator.

INSERT: Skoog\_ConversionExample\_CLS TITLE: example of converting a mixed number to an improper fraction

After you have your improper fraction, you can multiply the fractions the same way that you learned above. Don’t forget to simplify your answer!

INSERT: Skoog\_ImproperFractionMultiplication\_CLS TITLE: example of multiplying fractions after converting to improper fraction

**Heading:** Converting Decimals to Fractions

**Text:** A decimal number is similar to a fraction in that decimals are not whole numbers, but parts of a whole. In decimal notation, you have a number that contains a dot, the decimal, such as 1.5. The numbers before the decimal are whole numbers. The numbers after the decimal represents parts or fraction portions. In whole numbers, you have place value which lets you know the value of digits based on where they are in the number. For example, in the number 613 you know that the 6 is in the hundreds place so you have 6 hundreds or 600, the 1 is in the tens place so you have one ten or 10 and the 3 is in the ones place so you have 3 ones or 3. If you add these numbers together: 600 + 10 + 3 you get 613. In decimals, you also have place value. Just like in regular numbers the place value decreases in values of 10 as you go to the right. So the further you are after the decimal, the smaller the place value. The first place value after the decimal is , the second is , the third is , and so on. So if you had the number 613.54 you would have the same place values as you did above before the decimal. After the decimal you would have 5 one-tenths ( x ) or s and you would have 4 one-hundredths ( x or . This would give you 600 + 10 + 3 + + . Notice that the place values in decimals are the same as fractions because they represent parts of a whole. Therefore, you can easily change between decimals and fractions by just multiplying the digit by its place value to find out the fraction. For example, if you had 0.07 you would have 7 x or . Changing a decimal to a fraction can make it much easier to do math such as adding, subtracting, multiplying or dividing.

INSERT: Skoog\_PlaceValueChart\_CLS TITLE: place value chart including decimals

**Career Connection and Real-World Application**

**Heading:** DJ

**Text:** DJs play live music for people at dance clubs, festivals, and other events and parties. They use turn tables, vinyl records, CDs, and audio files. They work to use music to evoke feelings in their audience, usually excitement or happiness to keep them feeling energized. DJs might create remixes of songs by mashing them with other songs, speeding them up, looping them, or creating other effects. They work with remixing software and other applications to help them create the most entertaining and engaging music.

INSERT: Skoog\_DJ\_Pexels TITLE: DJ playing a set

**Heading:** Music Producer

**Text:** Music production is the entire process of creating, changing, and saving music. Music producers work with musicians and other artists to oversee the entire production of music including the technical and creative aspects. They have many jobs and roles when it comes to creating the music and must be very good at a variety of things. The most important parts of a music producers job is ensuring that the production stays within the time and money budget, editing the recordings to sound how the artists imagine them, and ensuring that the performers are doing their best.

INSERT: Skoog\_MusicProducer\_Pexels TITLE: music producer editing music

**Heading:** Composer

**Text:** A composer is a person that writes original music. They do this by studying existing music, rearrnaging music that already exists, and writing lyrics. Composers must have a vast knowlege of musical notation, as well as musical instruments and how they combine together to form sound. Composers write music for a variety of sitautions and enviornments ranging from video games to Broadway plays. They tend to use music to express themselves in ways so that others can understand and relate. Modern composers use technology and computers to aid them as they write.

INSERT: Skoog\_MusicComposer\_Pexels TITLE: picture of a male music composer

**Heading:** Math Teacher

**Text:** A math teacher instructs students in math at all levels of education. This person teaches new mathematical ideas to students and test them on their mathematical knowledge. They are fundamental in helping students develop their foundational math skills for the future and teaching how they can apply their math skills to real life situations. There are general math teachers that focus on developing a student’s overall foundational math skills or they may have a particular area of math they focus on such as statistics, algebra, calculus, etc.

INSERT: Skoog\_MathTeacher\_Pexels TITLE: math teacher stands in front of chalkboard

# **Assignment- Plan and SMART Goal – Skoog: Remix a Song**

**Plan and SMART Goal – Skoog: Remix a Song**

Before you start your challenge, make a plan for your project and set a SMART goal. Your goal should be Specific, Measurable, Attainable, Relevant, and Time Based.

1. Think about your remix.
   * *How do you think it will be different from the original?*
   * *How will you know what pitch your notes should be?*
   * *What can you do to make sure your notes will add up to your time signature?*
2. *Why do you think composers remix songs?*
3. Write your project SMART Goal: We will use (name of technology) to (detailed description) by (due date). We are creating this because (personal interest or purpose).

# **Do It! Skoog: Remix a Song**

## **The Challenge**

Your challenge is to use Skoog to explore notes, beats and time sigature. Then, choose a song and remix it by changing its time signatures. You will use fractions and whole numbers to represent notes and remix it. You’ll rewrite it using Skoog notation.

**Getting Started:**

There are a lot of steps and math involved in remixing music! You will find it helpful to write and show your work as you do the different steps. Consider using this remixing template as you practice and then remix your own chosen song.

**Project Steps**

1. Search for Song
2. Identify Time Signature of Song
3. Change Time Signature
4. Remix Your Song
5. Record Your Song

**Heading:** Search for Song

**Text:** First you need to search and find the song you want. Go to the INSERT: <https://skoogmusic.com/support/skoog-song-book/> TITLE: Skoog Song Book and scroll down to the kid’s songs. The Skoog Sound Book has a collection of songs that have already been converted into a pentatonic scale for use with the Skoog. Find “Happy Birthday”.

INSERT: Skoog\_Songbook\_CLS TITLE: screenshot of kid’s songs on Skoog Song Book webpage

TIP: Use this INSERT: Skoog\_RemixTemplate\_CLS TITLE: Remixing Template to help keep track of your calculations

**Heading:** Change the Time Signature

**Text:** After you have picked a song, you need to know its time signature so you can remix it. Unfortunately Skoog Notation does not include time signature. However, you can simply search for the time signature of your chosen song on Google and find it. To do this:

1. Go to INSERT: google.com TITLE: Google
2. Type “time signature of \_\_\_\_\_\_\_\_”
3. The first result should state the time signature.
4. If the first result does not give you the time signature, go to images and click on a picture of the sheet music. You can then find the time signature there.

Try finding the time signature for “Happy Birthday” by using the steps above.

INSERT: Skoog\_HappyBirthdayTimeSignature\_CLS TITLE: Screenshot of “Happy Birthday” time signature search on Google

After you know the time signature, you need to remix it. To do this you will begin by multiplying it by a factor of 1.5. Your time signature is written as a fraction, so to multiply you will first need to convert the decimal, 1.5, to a fraction. Since you have a number before your decimal you know that you have at least 1 whole. So we will make it a mixed number first. Recall that the place value after the decimal is 10ths or . In 1.5 there is a 5 in the 10ths place so it represents and you still have your 1 whole so you will add 1 + . You now have a mixed number of 1. You cannot multiply mixed numbers by fractions. Therefore, you need to convert your mixed number to an improper fraction. Remember the steps for doing this:

1. Multiply your whole number by your denominator.
2. Add that number to your numerator.
3. Write your improper fraction using the same denominator.

Our whole number is 1. Multiply 1 x 10 as that it is the number of parts needed to make a whole. 1 x 10 = 10. Then add the number of parts that you have (the numerator) which is 5. 10 + 5 = 15. This is the total number of parts that you have. Put this number over your denominator of 10. Your final improper fraction is .

You are now ready to multiply by your time signature! When multiplying fractions you will just go straight across. x = . Simplify using your greatest common factor, 5, and you end up with .

INSERT: Skoog\_ExampleTemplate\_CLS TITLE: Screenshot of completed template with calculations

You are now ready to write the remix!

**Heading:** Remix Your Song

**Text:** Now that you know the steps and calculations needed, you will repeat them to remix a song of your choice. Use these steps:

1. Go to INSERT: <https://skoogmusic.com/support/skoog-song-book/> TITLE: Skoog Song Book and pick a song of your choice.
2. Find the time signature.
3. Multiply the time signature by a factor of 1.5. Use INSERT: Skoog\_RemixTemplate\_CLS TITLE: Remixing CalculationsTemplate to help you.
4. Remix with the new time signature

Remember that remixes use pieces of original music, so plan to use the same pentatonic scale as you see in the Skoog Song Book Sheet Music. You will rewrite the song using the new time signature. Remember the numerator of your time signature is the number of beats that each measure of the song is going to contain. Go through each measure and figure out how you can use whole and fractional beats to equal the correct number of beats in your time signature. Make sure you write them down to check your work and so you don’t forget. Draw your colored squares and rectangles as you go. You can use the INSERT: https://skoogmusic.com/support/creating-skoog-colour-tracks/ TITLE: Skoog Notation webpage

to help you. When you are done play your new remix. How does it sound different from the original?

INSERT: Skoog\_ExampleRemix\_CLS TITLE: example of a remixed song in Skoog Notation

**Heading**: Record Your Song

**Text**: Now that you have your remix you need to record it so that others can hear it! Using your iPad take a video of you using your Skoog to play your remix. Make sure you also take a picture of your song remix to upload, so the viewer can follow along as you play.

# **Assignment- Daily Project Journal – Skoog: Remix a Song**

### **Daily Project Journal –** **Skoog: Remix a Song**

Use this space to answer the following questions every day by collaborating with your partner - this is a group assignment.

1. *What did we do today?*
2. *What did we learn?*
3. *What math did we use?*
4. *What could we have done differently?*
5. *What new questions do we have based on our work today/this week?*
6. *What is our plan for next time?*

# **Assignment- Project Submission – Skoog: Remix a Song**

### **Project Submission – Skoog: Remix a Song**

1. Upload a picture of your song remix with your beats included.
2. Upload a recording of your song with the remixed time signature
3. Reflect on the following questions:

* *How did your time signature change?*
* *How does music relate to math?*
* *How did the new time signature change your song? Was it more interesting? Boring? Which did you prefer, your remix or the original?*
* *Do you think the original lyrics could still be sung along with your remix?*
* *What did you learn about writing music?*
* *How are beats similar to fractions?*

1. Revisit your SMART goal. Remember, your goal should be Specific, Measurable, Attainable, Relevant, and Time Based.

* *Did you meet your SMART goal? Why or why not?*
* *How did you manage your time? How could you improve your time management?*
* *Did you have to modify your SMART goal?*
* *What will you do differently next time?*

# **Extend Yourself – Skoog: Activity Title**

**Heading:** New Song, Same Time Signature

**Text:** Use the same time signature from your remixed song, but compose a new song. Use a different pentatonic scale of your choice. Try changing the instrument. *Was your new song different from your remixed one even though they had the same time signature? What can we learn about music from this?*

INSERT: Skoog\_SheetMusic\_Pexels TITLE: sheet music

**Heading:** Remix with Live Loops

**Text:** Try adding live loops in garage band to add to your remix. Live loops allows you to take sections of songs and loop them as you play along or play a new song with skoog. Try looping a song in the background as you play your remix. *How does this change the feeling of your song?Did it make it harder to play? Why do you think DJs commonly do this during their sets?*

INSERT: Skoog\_LiveLoops\_CLS TITLE: screenshot Of GarageBand live loops

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| --- | --- | --- | --- |
| **IMAGE AND RESOURCE INFORMATION**  INSERT: Yellow highlight indicates image/video insert (INSERT: TITLE:)  INSERT: Pink highlight indicates PDF/document insert (INSERT: TITLE:)  INSERT: Orange highlight indicates interactive/widget insert from custom CLS template (INSERT: TITLE:)  INSERT: Blue highlight indicates link in line with URL and title (INSERT: TITLE:) | | | |
| **Title** | **Alt Text** | **Original URL** | **Date** |
| Skoog\_MathTeacher\_Pexels | Math Teacher Stands in front of chalkboard | https://www.pexels.com/photo/photo-of-woman-standing-in-front-of-blackboard-5212320/ | 11/8/23 |
| Skoog\_HappyBirthdayTimeSignature\_CLS | Screenshot of happy birthday time signature search on google |  |  |
| Skoog\_ExampleRemix\_CLS | Example of a remixed song in Skoog Notation |  |  |
| Skoog\_PlaceValueChart\_CLS | Place Value Chart including Decimals |  |  |
| Skoog\_MusicComposer\_Pexels |  | https://www.pexels.com/photo/man-playing-the-keyboard-in-front-of-a-computer-screen-18762080/ | 11/8/23 |
| Skoog\_Songbook\_CLS | Screenshot of Kid’s Songs on Skoog Songbook Webpage |  |  |
| Skoog\_ImproperFractionMultiplication\_CLS |  |  |  |
| Skoog\_ConversionExample\_CLS | example of converting a mixed number to an improper fraction |  |  |
| Skoog\_MixedNumberLabeled\_CLS | Mixed Number with parts labeled |  |  |
| Skoog\_MultiplyingFractions\_CLS | Example of multiplying fractions |  |  |
| Skoog\_SkoogNotation\_CLS | Skoog Notation Beat Examples |  |  |
| https://skoogmusic.com/support/creating-skoog-colour-tracks/ | Skoog Notation Webpage |  |  |
| Skoog\_TimeSignature\_CLS | A Measure of Music representing that notes add up to time signature |  |  |
| Skoog\_LabeledMusic\_CLS | Measure of music with parts labeled |  |  |
| https://skoogmusic.com/support/skoog-song-book/ | Skoog SongBook |  |  |
| Skoog\_SheetMusic\_Pexels | Sheet Music | https://www.pexels.com/photo/printed-musical-note-page-164821/ | 11/15/23 |
| Skoog\_LiveLoops\_CLS | Screenshot of GarageBand Live Loops |  | 11/15/23 |
| Skoog\_MusicProducer\_Pexels | Music Producer editing music | https://www.pexels.com/photo/man-in-black-shirt-wearing-headphones-in-front-of-monitors-8198567/ | 11/15/23 |
| Skoog\_Skoog\_CLS | Picture of Skoog |  |  |
| Skoog\_DJ\_Pexels | Dj playing a set | https://www.pexels.com/search/DJs/ | 11/15/23 |
| Skoog\_RemixTemplate\_CLS | Remixing Calculations Template |  |  |
| Skoog\_ExampleTemplate\_CLS | Screenshot of completed template with calculations |  |  |