

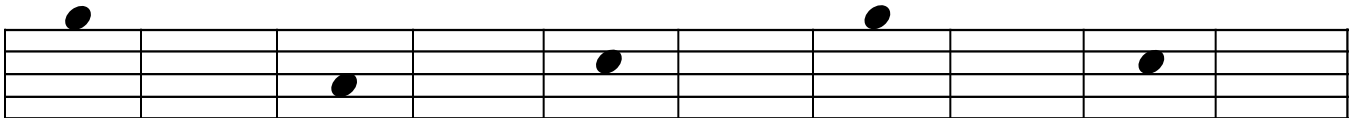
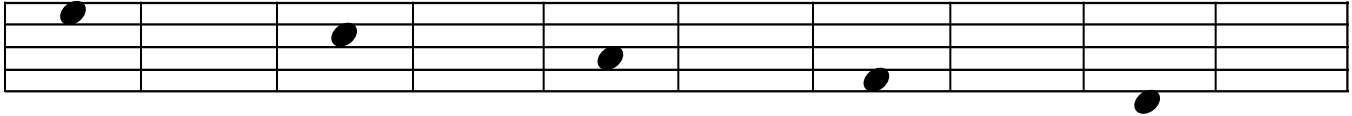
# STRING THEORY

CELLO

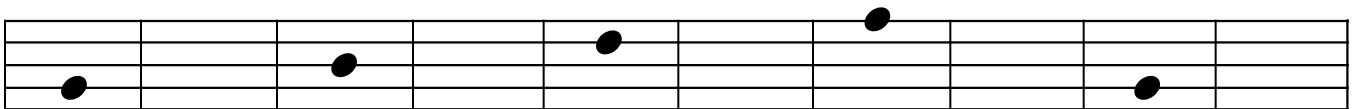
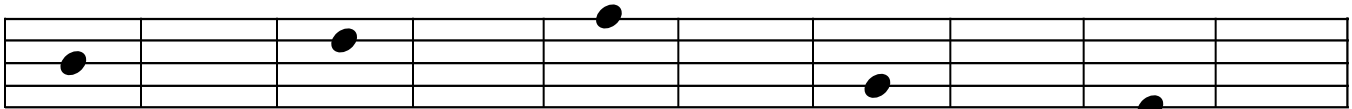
Name: \_\_\_\_\_

On this page you will draw noteheads without stems or rhythms. All noteheads should be the same size and filled in solid. Notes on a space should fill the space but not go past its lines.

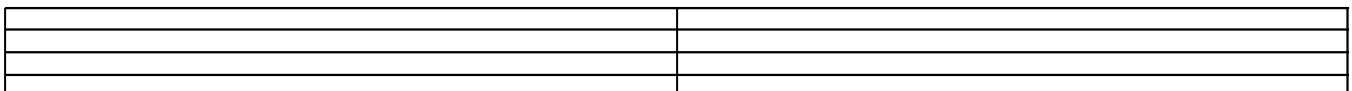
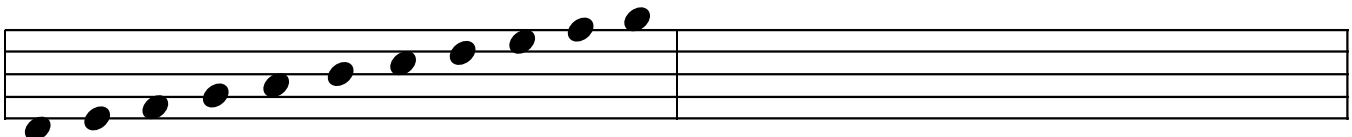
Practice notes in spaces by copying each note in the following blank measure. Notice that notes are not perfect circles, they're more like ovals tipped over a bit.



Notes on a line should be centered on the line and be the same size as notes on the space, so they will come halfway into the space above and halfway into the space below the note. Try copying these noteheads carefully.



Notes should never be smashed close together, but spaced clearly and equally (since we are not drawing rhythms). Now try writing a scale of notes in the staff. Copy the scale three times, once in each measure.



Name: \_\_\_\_\_

Ledger lines are used to extend the staff when we need to place a note higher or lower than the ones within the five lines of the staff. The notes sitting right on top and just below the staff do not use ledger lines. Ledger lines should be spaced the same as the lines in the staff and are a little longer than the note itself. Please copy these notes using ledger lines.

•                      •                      •                      •                      •

•                      •

•                      •                      •

•                      •                      •                      •

On the staff below is a sample of a scale from three spaces below the staff to three spaces above. Practice copying this ascending scale once, then try the descending version. Starting and ending notes are provided. How evenly can you space the notes? Are you using the ledger lines correctly?

Name: \_\_\_\_\_

Good practice makes good habits! Copy each note in the following blank measure. Be picky about your work; make sure notes are all the same size and centered correctly.

Two musical staves. The first staff has a note on the second line with a horizontal line above it. The second staff has a note on the first space.

Two musical staves. The first staff has a note on the second space. The second staff has a note on the first line.

Two musical staves. The first staff has a note on the second space with a horizontal line above it. The second staff has a note on the first space.

Two musical staves. The first staff has a note on the second space with a horizontal line above it. The second staff has a note on the first space.

Two musical staves. The first staff has a note on the second space with a horizontal line above it. The second staff has a note on the first space.

Two musical staves. The first staff has a note on the second space with a horizontal line above it. The second staff has a note on the first space.

Two musical staves. The first staff has a note on the second space with a horizontal line above it. The second staff has a note on the first space.



Name: \_\_\_\_\_

On this page you will practice drawing accidentals. Let's start with the sharp sign, which is like a number sign or hashtag with a slight upward tilt. Draw a sharp sign in each box.



Next is the natural sign. One way to think of this symbol is to draw an 'L' then a '7'. Draw a natural sign in each box.



Finally, the flat sign. A flat is like a smashed 'b'. You can also think of drawing half of a heart with a stem. Try drawing a flat sign in each box.

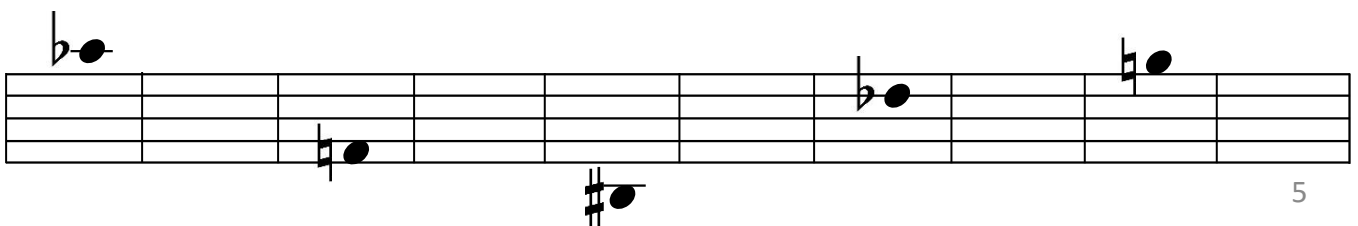


Now place the accidentals on the staff. They should be centered on a space or a line, just like notes are. Please copy each accidental in the following blank measure.



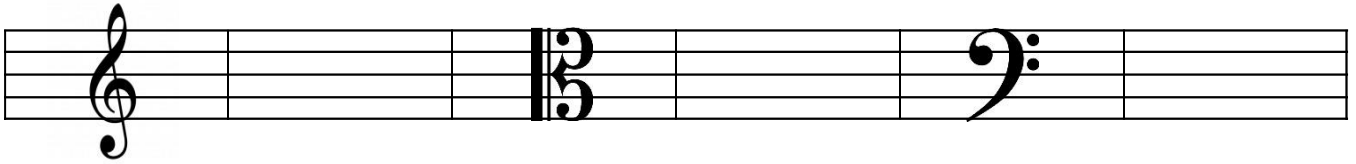
Now put the accidentals together with the notes you have practiced. Remember that **the accidental goes before the note**. Think of it like a dollar sign. Even though you put the dollar sign before the number, you say "five dollars," not "dollars five."

**We say and write "F sharp" but we draw "#F"**



Name: \_\_\_\_\_

We generally use three clefs in orchestra – treble, alto, and bass. Copy each clef in the following blank measure and write in which instrument(s) use it in the blank below.

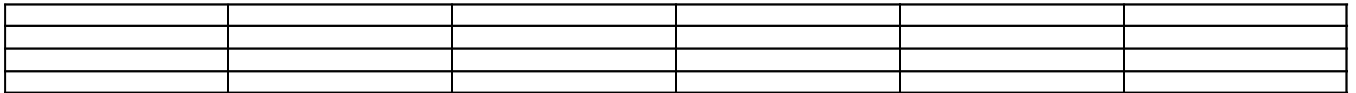


\_\_\_\_\_

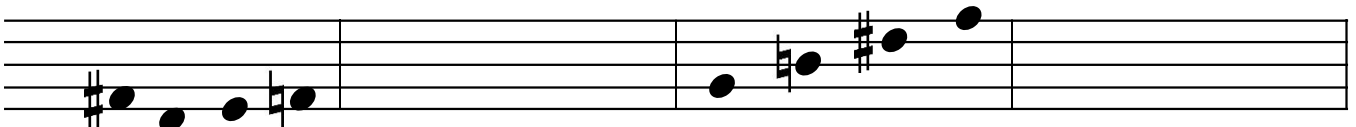
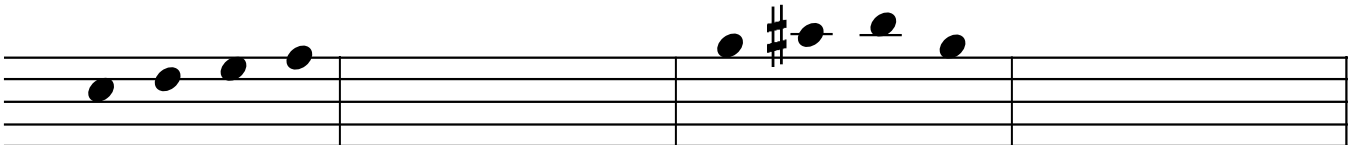
\_\_\_\_\_

\_\_\_\_\_

Now try drawing the clef you use most six times for practice.



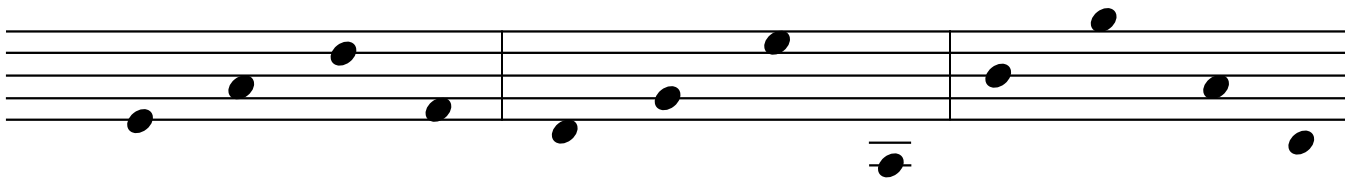
Practice note writing by drawing your clef in the beginning of each staff and then copying each measure of notes in the following blank measure.



Name: \_\_\_\_\_

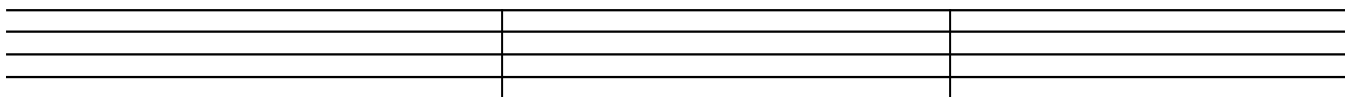
## Note Names - Review

You have been reading notes for a long time, but sometimes we just play them and don't think about what they are named. So, this is just a little review. Please draw in your clef and write the note names above the staff.

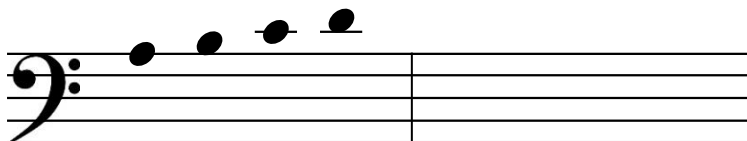


This time, draw your clef then draw the given note into the staff below. Remember how you practiced making your notes all the same size and centered on the space or line.

C    G    B    D    F    A    E    B    F    C    D    G



These are the notes on your highest string, the A. Please label these notes, then copy them in the next measure.



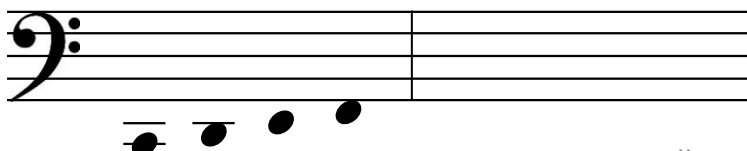
These are the notes on the D string. Please label these notes, then copy them in the next measure.



These are the notes on the G string. Please label these notes, then copy them in the next measure.



These are the notes on your lowest string, the C. Please label these notes, then copy them in the next measure.





Name: \_\_\_\_\_

Write in note names above each given note.

The image shows three musical staves in bass clef. Each staff contains several notes with various accidentals (sharps, flats, and naturals) and some notes are beamed together. The notes are: Staff 1: G2, A2, Bb2, C3, D3, E3, F3, G3, A3, B3, C4. Staff 2: D3, E3, F3, G3, Ab3, Bb3, C4, D4, Eb4, F4, G4, Ab4, Bb4, C5. Staff 3: D4, Eb4, F4, G4, Ab4, Bb4, C5, D5, Eb5, F5, G5, Ab5, Bb5, C6.

Draw your clef on each staff then draw in the given notes. Remember, accidentals come **before** the note in the staff.

F#      C      Ab      E      G#      D#      Bb      Gb

A blank musical staff with a vertical bar line in the middle, intended for drawing a clef and notes.

A      C#      Eb      Gb      B      Db      F      E#

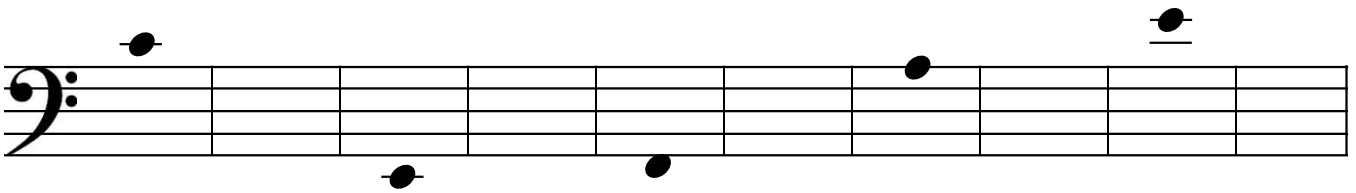
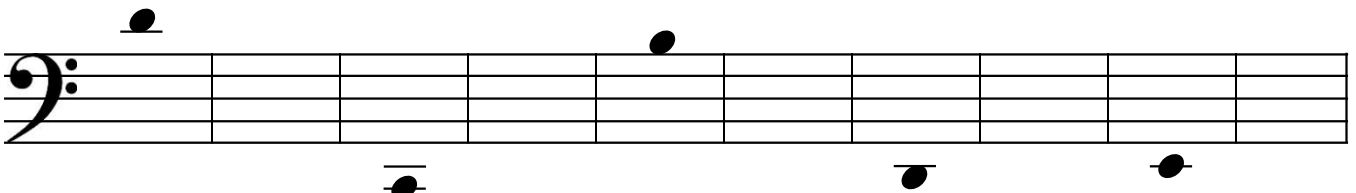
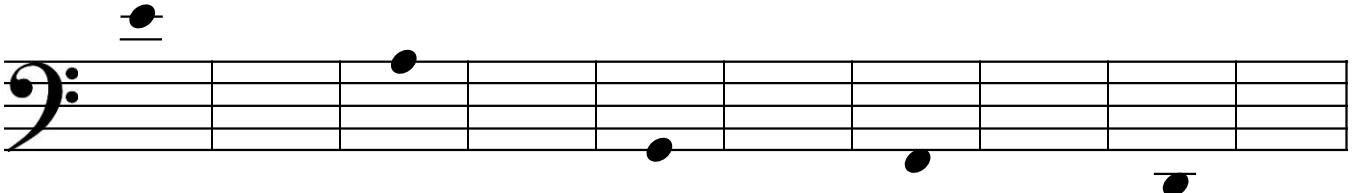
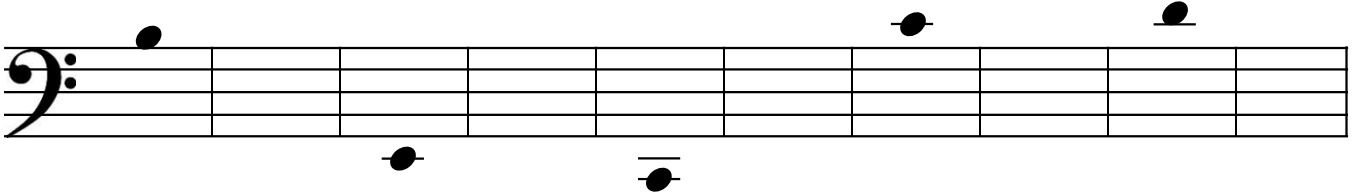
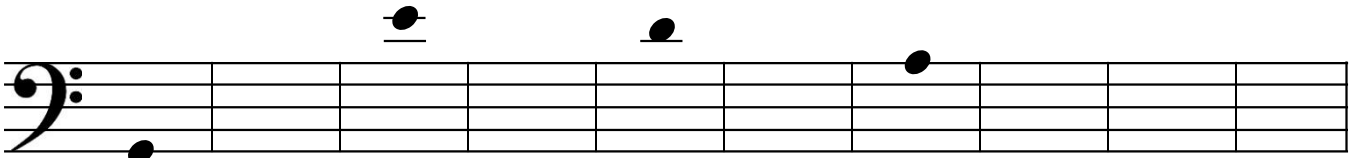
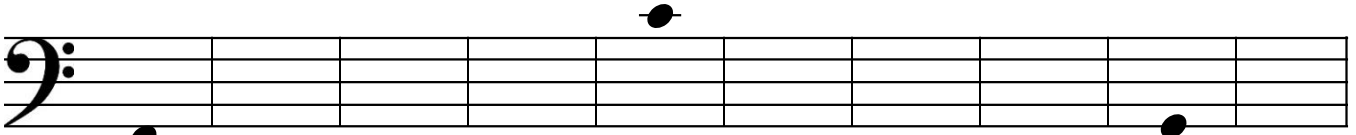
A blank musical staff with a vertical bar line in the middle, intended for drawing a clef and notes.

D      Bb      G#      E      A#      Cb      D#      C

A blank musical staff with a vertical bar line in the middle, intended for drawing a clef and notes.

Name: \_\_\_\_\_

Write each note name above the staff and copy each note in the following blank measure. This page focuses on notes using ledger lines and those on your highest and lowest strings.



Name: \_\_\_\_\_

This fingering chart shows all notes in first position. First, fill out the blanks on the left with the name of each fingering (such as 'first finger'). Then, fill in the circles and squares with the note names those fingerings represent on each string. To help check your answers all the circles represent natural notes while all the squares represent sharps and flats.

	C	G	D	A
→	□	□	□	□
→	○	○	○	○
→	□	□	○	○
→	○	○	□	□
→	○	○	○	○
→	□	□	□	□
→	○	○	○	○
(Optional - Third or Fourth Position)				

Name: \_\_\_\_\_

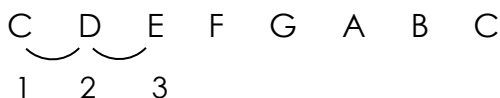
## Generic Intervals

The distance or space between two notes is called an interval. Intervals can be melodic (one note after another) or harmonic (two notes played at the same time). Intervals all have a number (such as third or fifth) and a quality (such as major or minor). For now we will just look at the number.

A generic interval is just the interval number, or an interval without a major or minor label. Sharps and flats do not matter. Half steps versus whole steps do not matter. Simply count notes or lines and spaces to find the distance between two notes.

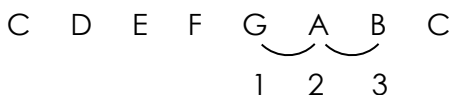
**The most important thing about generic intervals is that you count the given note (your starting point) as 1, then the next note as 2.**

D to E is a second, because D is 1 and E is 2. See more examples below.



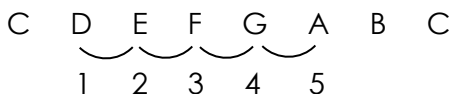
C to E is a third. C is 1, D is 2, and E is 3.

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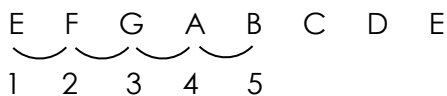
G to B is also a third. G is 1, A is 2, and B is 3.

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D to A is a fifth. D is 1, E is 2, F is 3, G is 4, and A is 5.

---



E to B is also a fifth. E is 1, F is 2, G is 3, A is 4, and B is 5.

Name: \_\_\_\_\_

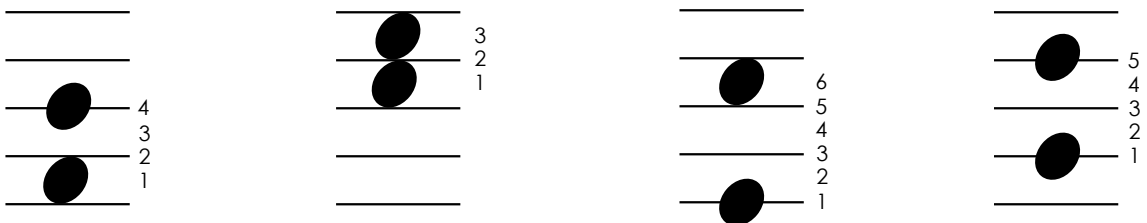
What is the interval between these notes? Your options are 2<sup>nd</sup> (second), 3<sup>rd</sup> (third), 4<sup>th</sup> (fourth), 5<sup>th</sup> (fifth), 6<sup>th</sup> (sixth), and 7<sup>th</sup> (seventh).

- |                  |                  |                  |
|------------------|------------------|------------------|
| 1. B to E _____  | 2. C to G _____  | 3. F to G _____  |
| 4. C to B _____  | 5. A to D _____  | 6. D to A _____  |
| 7. D to B _____  | 8. B to D _____  | 9. G to A _____  |
| 10. E to D _____ | 11. F to C _____ | 12. A to C _____ |

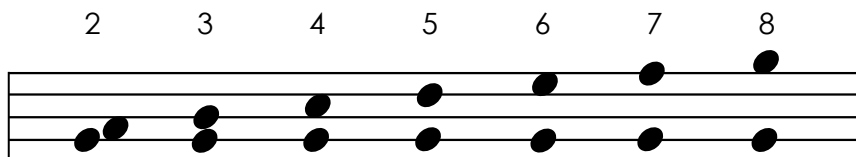
Please write the note name for the following:

- |                                       |                                       |                              |                               |
|---------------------------------------|---------------------------------------|------------------------------|-------------------------------|
| 1. A 4 <sup>th</sup> above G is _____ | 2. A 3 <sup>rd</sup> above C is _____ |                              |                               |
| 3. 5 <sup>th</sup> ↑ B _____          | 4. 2 <sup>nd</sup> ↑ F _____          | 5. 7 <sup>th</sup> ↑ A _____ | 6. 5 <sup>th</sup> ↑ D _____  |
| 7. 3 <sup>rd</sup> ↑ E _____          | 8. 6 <sup>th</sup> ↑ G _____          | 9. 2 <sup>nd</sup> ↑ A _____ | 10. 4 <sup>th</sup> ↑ F _____ |

When figuring out the generic interval between two notes on the staff, you can count the letter names or count lines and spaces. Two notes next to each other, like in a scale, are a second. For all intervals, remember to count the lower note as "one." Here are a few examples.



Harmonic intervals are written with one note right above the other, as if you are playing them together. The exception is a second, where you have to put the notes right next to each other. Notice that for odd numbered intervals, the notes are both on spaces or both on lines. For even numbered intervals, one is on a space and the other is on a line. Take a look at these examples of each interval.



Name: \_\_\_\_\_

For each measure, write the generic interval in the space above the staff.

\_\_\_\_\_

For each measure, draw in the given note to use as your starting point, then use the given generic interval to draw a higher note as a harmonic interval. In the first measure, draw in a G, then the note a fifth above that.

5      3      7      2      8      4      6      5      7      3

G      B      D      A      F      C      D      B      A      F

4      6      5      2      5      7      8      3      5      4

D      G      A      B      F      C      B      A      D      B

We call the 8<sup>th</sup> an "octave" and we abbreviate it P8, for 'perfect octave.' G up or down to G is an octave; so is D up or down to D. When you first learn a scale, you usually play up one octave. Draw in the note an octave above the given pitch as a harmonic interval. The first measure is done for you.

Name: \_\_\_\_\_

For each measure, write the generic interval in the space above the staff.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

For each measure, draw in the given note to use as your starting point, then use the given generic interval to draw a higher note as a harmonic interval.

6      5      2      4      8      6      3      7      2      5

D      B      C      A      F      B      C      E      A      F

6      8      7      4      7      2      3      5      7      6

D      G      E      C      F      D      B      A      G      E

Name: \_\_\_\_\_

# Paths

Paths are exercises used to practice intervals. You are given a starting note, an arrow telling you to go up or down, and what generic interval to use. Write the new note in the blank, and that note becomes your new starting point. The trick is that you have to be correct on all steps of the path in order to be correct at the end. Good Luck!!

1. C  
↑ 5 \_\_\_\_\_  
↑ 2 \_\_\_\_\_  
↓ 3 \_\_\_\_\_  
↑ 6 \_\_\_\_\_  
↑ 4 \_\_\_\_\_

2. G  
↑ 2 \_\_\_\_\_  
↑ 4 \_\_\_\_\_  
↑ 7 \_\_\_\_\_  
↓ 3 \_\_\_\_\_  
↓ 6 \_\_\_\_\_

3. A  
↑ 3 \_\_\_\_\_  
↑ 6 \_\_\_\_\_  
↑ 2 \_\_\_\_\_  
↓ 7 \_\_\_\_\_  
↓ 5 \_\_\_\_\_

4. D  
↑ 6 \_\_\_\_\_  
↑ 2 \_\_\_\_\_  
↓ 3 \_\_\_\_\_  
↓ 5 \_\_\_\_\_  
↑ 4 \_\_\_\_\_

5. B  
↑ 5 \_\_\_\_\_  
↑ 4 \_\_\_\_\_  
↑ 2 \_\_\_\_\_  
↑ 4 \_\_\_\_\_  
↑ 3 \_\_\_\_\_

6. F  
↑ 2 \_\_\_\_\_  
↑ 7 \_\_\_\_\_  
↑ 3 \_\_\_\_\_  
↓ 5 \_\_\_\_\_  
↓ 4 \_\_\_\_\_

7. B  
↑ 4 \_\_\_\_\_  
↑ 3 \_\_\_\_\_  
↑ 2 \_\_\_\_\_  
↑ 4 \_\_\_\_\_  
↓ 2 \_\_\_\_\_

8. E  
↑ 7 \_\_\_\_\_  
↑ 3 \_\_\_\_\_  
↑ 5 \_\_\_\_\_  
↓ 2 \_\_\_\_\_  
↑ 4 \_\_\_\_\_

9. C  
↑ 3 \_\_\_\_\_  
↑ 5 \_\_\_\_\_  
↑ 4 \_\_\_\_\_  
↑ 2 \_\_\_\_\_  
↓ 6 \_\_\_\_\_

10. A  
↑ 5 \_\_\_\_\_  
↑ 2 \_\_\_\_\_  
↑ 3 \_\_\_\_\_  
↓ 2 \_\_\_\_\_  
↑ 4 \_\_\_\_\_

11. G  
↑ 7 \_\_\_\_\_  
↓ 3 \_\_\_\_\_  
↓ 4 \_\_\_\_\_  
↑ 2 \_\_\_\_\_  
↑ 3 \_\_\_\_\_

12. E  
↑ 2 \_\_\_\_\_  
↑ 4 \_\_\_\_\_  
↑ 3 \_\_\_\_\_  
↓ 6 \_\_\_\_\_  
↓ 2 \_\_\_\_\_

13. D  
↑ 4 \_\_\_\_\_  
↑ 2 \_\_\_\_\_  
↑ 6 \_\_\_\_\_  
↑ 5 \_\_\_\_\_  
↑ 3 \_\_\_\_\_

14. F  
↑ 5 \_\_\_\_\_  
↑ 2 \_\_\_\_\_  
↑ 4 \_\_\_\_\_  
↑ 3 \_\_\_\_\_  
↓ 7 \_\_\_\_\_

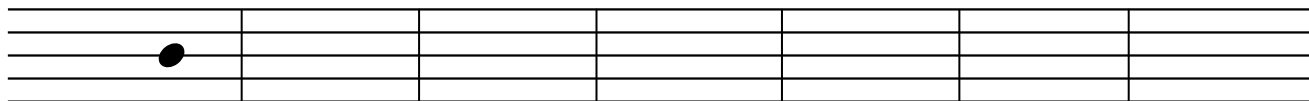
15. C  
↑ 3 \_\_\_\_\_  
↑ 6 \_\_\_\_\_  
↑ 4 \_\_\_\_\_  
↑ 5 \_\_\_\_\_  
↑ 2 \_\_\_\_\_



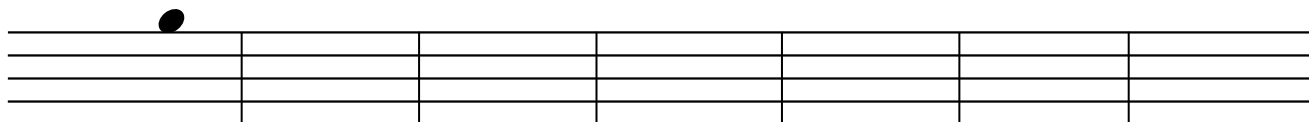
Name: \_\_\_\_\_

For each staff below:

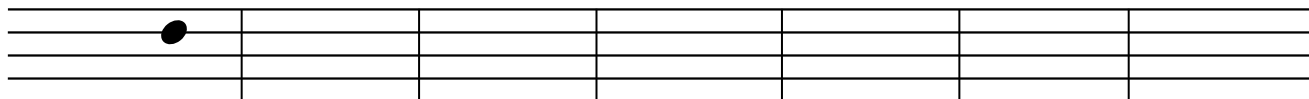
1. Draw your clef
2. Using the given note as a starting point, follow the generic interval and direction given to draw a new note in the second measure.
3. Use this new note as a starting point for the next measure.



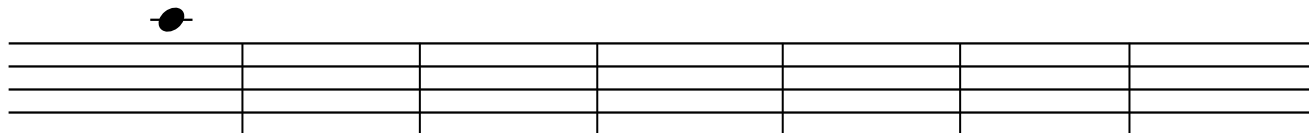
D      ↑ 5      ↑ 3      ↓ 2      ↓ 7      ↑ 4      ↑ 2



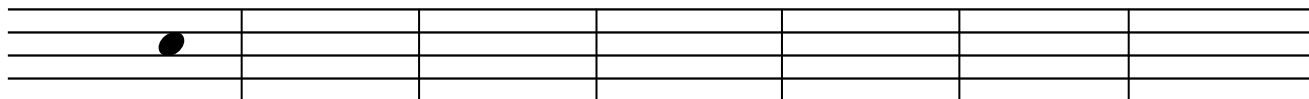
B      ↓ 4      ↓ 3      ↑ 2      ↑ 5      ↑ 3      ↓ 6



F      ↓ 3      ↑ 4      ↑ 2      ↑ 3      ↓ 5      ↑ 2



C      ↓ 7      ↑ 4      ↑ 2      ↓ 5      ↓ 2      ↑ 6



E      ↑ 6      ↓ 5      ↑ 3      ↑ 2      ↓ 4      ↓ 3

Name: \_\_\_\_\_

## Half and Whole Steps

If two notes are right next to each other, like D and E, they are (almost always) either a half step or a whole step apart.

This is the whole step symbol 

This is the half step symbol 

You can connect note names like this 



Two half steps is equal to one whole step.

Major scales are made up of only half and whole steps. Play a C Major scale to feel where the half and whole steps are. Then, use the two symbols to show the intervals in the C Major Scale. You should end with total of seven symbols.

C   D   E   F   G   A   B   C

There is a half step between \_\_\_\_ and \_\_\_\_, and between \_\_\_\_ and \_\_\_\_.

These two half steps are called the **“naturally occurring half steps”** because they are the only two half steps that occur between two natural notes. **That means that any other 2 consecutive natural notes are always a whole step apart.**

Using this rule, please put  and  symbols above these note pairs. Remember that these are all natural notes.

F to G

B to C

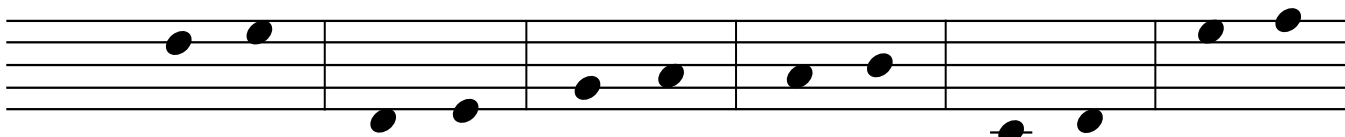
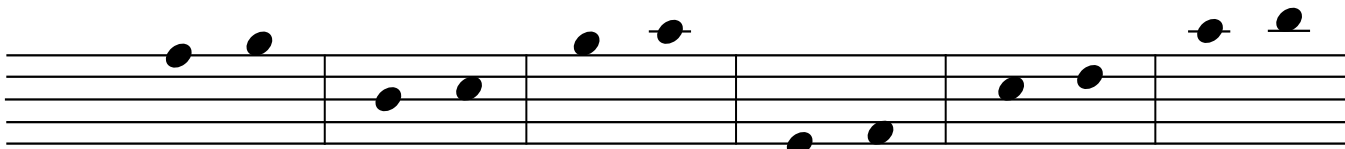
A to B

E to F

D to E

G to A

Please draw your clef at the beginning of each staff below. Then, connect the notes using half and whole step symbols to show the interval in each measure.



Name: \_\_\_\_\_

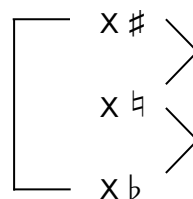
## Sharps and Flats

**A sharp makes a note a half step higher.**

**A flat makes a note a half step lower.**

This means that if you are asked what a half step higher than C is, you don't even need to know what a C is, just add a sharp – the answer is C#. If you are asked what is a half step lower than D, you don't even need to know what a D is, just add a flat – the answer is D♭.

All notes have a flat version, a natural version, and a sharp version. Each of those versions are a half step apart. If you go a half step up from a flat note, you're on the natural version of that note. If you go a half step down from a sharp note, you're on the natural version.



Before going on, make sure you know what "higher" and "lower" mean. If you're adding fingers (going from first finger to second finger), the notes are getting higher in pitch. Taking fingers away means the notes get lower in pitch. Try sliding from a low note to a high note on one string. For violins and violas, you slide up towards your nose. Cellos and basses, when you slide 'up' your hand actually goes towards the floor.

What note is a half step higher than this note?

1. F \_\_\_\_\_
2. B♭ \_\_\_\_\_
3. D \_\_\_\_\_
4. A \_\_\_\_\_
5. F♭ \_\_\_\_\_
6. C \_\_\_\_\_
7. F \_\_\_\_\_
8. G \_\_\_\_\_
9. D♭ \_\_\_\_\_
10. E♭ \_\_\_\_\_

What note is a half step lower than this note?

1. E \_\_\_\_\_
2. F# \_\_\_\_\_
3. A \_\_\_\_\_
4. D# \_\_\_\_\_
5. B \_\_\_\_\_
6. G# \_\_\_\_\_
7. D \_\_\_\_\_
8. C# \_\_\_\_\_
9. G \_\_\_\_\_
10. A# \_\_\_\_\_

What is a whole step higher than G♭? \_\_\_\_\_

What is a whole step lower than D#? \_\_\_\_\_

Name: \_\_\_\_\_

Please draw your clef at the beginning of each staff. Then, connect the two notes in each measure using a half or whole step symbol.

Staff 1: A five-line musical staff with six measures. Measure 1: G4, A4. Measure 2: Bb4, Ab4. Measure 3: G#4, F#4. Measure 4: E4, D4. Measure 5: C4, Bb3. Measure 6: A3, G3.

Staff 2: A five-line musical staff with six measures. Measure 1: Fb4, E4. Measure 2: D4, C4. Measure 3: Bb3, Ab3. Measure 4: G3, F3. Measure 5: E3, D3. Measure 6: C#3, B#2.

Staff 3: A five-line musical staff with six measures. Measure 1: Fb4, E4. Measure 2: D#4, C#4. Measure 3: B#3, A#3. Measure 4: G#3, F#3. Measure 5: E#3, D#3. Measure 6: C#3, B#2.

Staff 4: A five-line musical staff with six measures. Measure 1: Bb3, Ab3. Measure 2: G#3, F#3. Measure 3: E4, D4. Measure 4: C4, Bb3. Measure 5: A3, G3. Measure 6: F3, E3.

Staff 5: A five-line musical staff with six measures. Measure 1: D4, C4. Measure 2: B#3, A#3. Measure 3: G#3, F#3. Measure 4: E4, D4. Measure 5: C4, Bb3. Measure 6: A3, G3.

Staff 6: A five-line musical staff with six measures. Measure 1: G3, F3. Measure 2: E#3, D#3. Measure 3: C#3, B#2. Measure 4: A3, G3. Measure 5: F3, E3. Measure 6: D#3, C#3.

Name: \_\_\_\_\_

There are two errors in each line below. Find and circle the incorrect symbols.

Staff 1: Bass clef, six measures. Measure 1: G#4, A4 (beamed). Measure 2: B4, C5 (beamed). Measure 3: D5, E5 (beamed). Measure 4: F5, G5 (beamed). Measure 5: A5, B5 (beamed). Measure 6: C6, D6 (beamed).

Staff 2: Bass clef, six measures. Measure 1: G#4, A4 (beamed). Measure 2: B4, C5 (beamed). Measure 3: D5, E5 (beamed). Measure 4: F5, G5 (beamed). Measure 5: A5, B5 (beamed). Measure 6: C6, D6 (beamed).

Staff 3: Bass clef, six measures. Measure 1: G#4, A4 (beamed). Measure 2: B4, C5 (beamed). Measure 3: D5, E5 (beamed). Measure 4: F5, G5 (beamed). Measure 5: A5, B5 (beamed). Measure 6: C6, D6 (beamed).

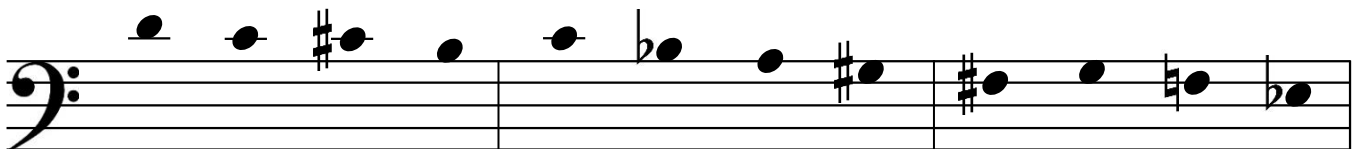
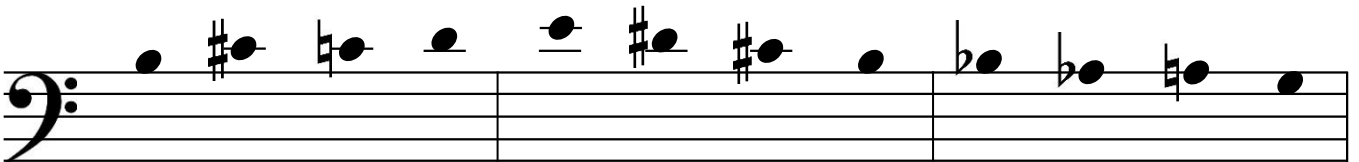
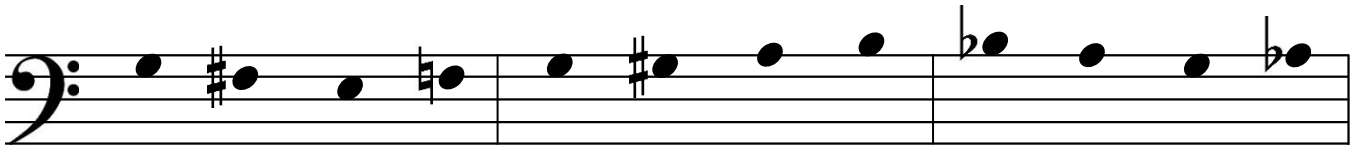
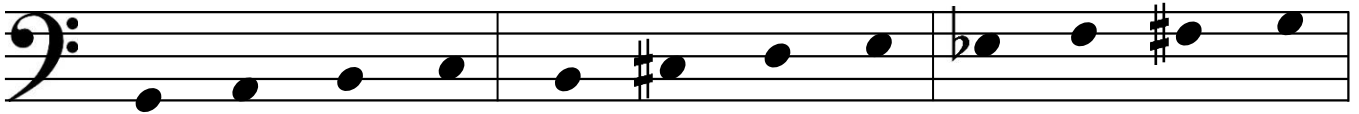
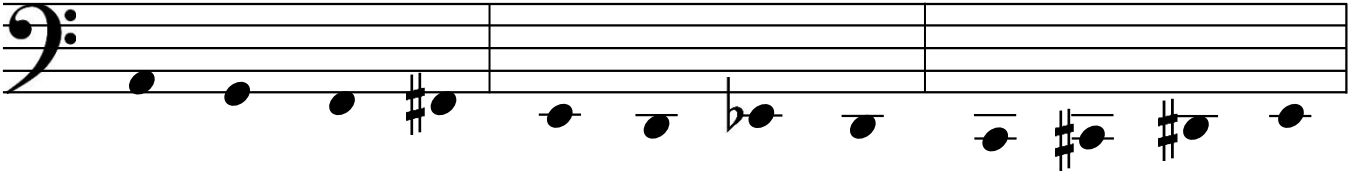
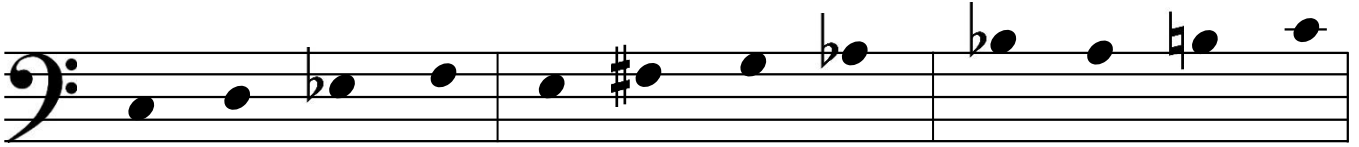
Staff 4: Bass clef, six measures. Measure 1: G#4, A4 (beamed). Measure 2: B4, C5 (beamed). Measure 3: D5, E5 (beamed). Measure 4: F5, G5 (beamed). Measure 5: A5, B5 (beamed). Measure 6: C6, D6 (beamed).

Staff 5: Bass clef, six measures. Measure 1: G#4, A4 (beamed). Measure 2: B4, C5 (beamed). Measure 3: D5, E5 (beamed). Measure 4: F5, G5 (beamed). Measure 5: A5, B5 (beamed). Measure 6: C6, D6 (beamed).

Staff 6: Bass clef, six measures. Measure 1: G#4, A4 (beamed). Measure 2: B4, C5 (beamed). Measure 3: D5, E5 (beamed). Measure 4: F5, G5 (beamed). Measure 5: A5, B5 (beamed). Measure 6: C6, D6 (beamed).

Name: \_\_\_\_\_

Use half and whole step symbols to connect all the notes on each staff. You should end up with 11 symbols for each line.



Name: \_\_\_\_\_

Use half and whole step symbols to connect all the notes on each staff. You should end up with 11 symbols for each line.

