

# HIT THE NOTE – *Student Guide*

## PLAY MUSIC BY TUNING DRINKING GLASSES

### VOCABULARY

**FREQUENCY-** The speed of the vibration which determines the *pitch* of the sound

**AMPLITUDE-** The size of the vibration that determines how loud the sound is

**HERTZ-** Unit of *frequency*

**PITCH-** How high or low a note is

**TUNE-** Adjust (a musical instrument) to the correct or uniform *pitch*

### NOTE FREQUENCIES

F#	369.99 Hz
G#	415.30 Hz
A	440.00 Hz
B	493.88 Hz
C#	554.37 Hz
D	587.33 Hz
E	659.25 Hz
F#	739.99 Hz

### MATERIALS

Eight drinking glasses

A large pitcher of water

Pitch detection app or tuning forks

Metal spoon

Frequency reference sheet (this page)

Sheet music (last page)

## CHALLENGE ONE: EXPLORATION

Experiment with how different amounts of water impact the sound created when you hit the glass with a metal spoon. Try adding and subtracting water to hit a note from the **frequency** list above. Note that your hertz reading may not match exactly, but try to get it as close as you can. Record your observations and think about the following questions while you work:

What sound does a glass with a lot of water make? What about with a little amount of water?

How does the shape and size of the glass effect the **pitch**?

Why don't the **frequency** Hertz match up exactly?

## CHALLENGE TWO: PLAY A SONG

Using what you learned in the last activity, try to tune a few drinking glasses to play a song. You can choose one from the list below, or make up your own song. Happy tuning!

Song choices:

Hot Cross Buns (Easy)

Twinkle Twinkle Little Star (Intermediate)

This Too Shall Pass (Intermediate)

You are my Sunshine (Hard)

# THIS TOO SHALL PASS

Let it go, this too shall pass.

Musical notation for the song 'This Too Shall Pass' in 4/4 time, featuring a treble clef and a key signature of one sharp (F#). The melody consists of the following notes: C4 (quarter), E4 (quarter), G4 (quarter), A4 (quarter), F#4 (quarter), G#4 (quarter), and B4 (half).

# TWINKLE TWINKLE LITTLE STAR

Musical notation for the song 'Twinkle Twinkle Little Star' in 4/4 time, featuring a treble clef and a key signature of one sharp (F#). The melody consists of the following notes: A3 (quarter), A3 (quarter), E4 (quarter), E4 (quarter), F#4 (quarter), F#4 (quarter), E4 (quarter), D4 (quarter), D4 (quarter), C#4 (quarter), C#4 (quarter), B3 (quarter), B3 (quarter), A3 (quarter), E4 (quarter), E4 (quarter), D4 (quarter), D4 (quarter), C#4 (quarter), C#4 (quarter), B3 (quarter), B3 (quarter), A3 (quarter).

# YOU ARE MY SUNSHINE

Musical notation for the song 'You Are My Sunshine' in 4/4 time, featuring a treble clef and a key signature of one sharp (F#). The melody consists of the following notes: A3 (quarter), A3 (quarter), B3 (quarter), C#4 (quarter), C4 (quarter), C#4 (quarter), B3 (quarter), C4 (quarter), A3 (quarter), A3 (quarter), A3 (quarter), B3 (quarter), C#4 (quarter), B3 (quarter), C4 (quarter), B3 (quarter), C#4 (quarter), B3 (quarter), C4 (quarter), A3 (quarter), A3 (quarter), A3 (quarter), B3 (quarter), C#4 (quarter), B3 (quarter), C4 (quarter), B3 (quarter), C#4 (quarter), B3 (quarter), C4 (quarter), A3 (quarter).

# HOT CROSS BUNS

Musical notation for the song 'Hot Cross Buns' in 4/4 time, featuring a treble clef and a key signature of one sharp (F#). The melody consists of the following notes: C#4 (quarter), B3 (quarter), A3 (quarter), C#4 (quarter), B3 (quarter), A3 (quarter), A3 (quarter), A3 (quarter), A3 (quarter), A3 (quarter), B3 (quarter), B3 (quarter), B3 (quarter), B3 (quarter), C#4 (quarter), B3 (quarter), A3 (quarter).