

# GAME MUSIC COMPOSER

## REVIEW TEMPO, METER, HARMONICS



ONE DAY

GAME MUSIC COMPOSER

REVIEW 10-20 MINUTES  
CONCEPTS | FORM AND STRUCTURE 10-15 MINUTES

DEVELOPING SKILLS PRACTICE 50 MINUTES

SHORT BREAK 10 MINUTES

MEETING WITH DEVELOPER 15 MINUTES @11:00 AM  
PROJECT PLANNING MEETING WITH INSTRUCTOR 10-15 MINUTES  
PRACTICE EXERCISE IN SKILLS WITH SLIGHT VARIATIONS 30  
MINUTES

REVIEW CONCEPTS | HOMEWORK 10-20 MINUTES @11:30 AM

# Github

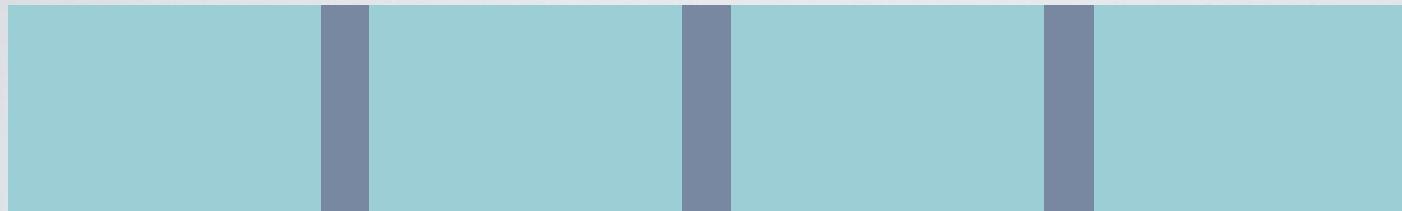
[https://github.com/junior-devleague/GameProductionProgram/tree/  
master/GameMusicComposition/Week3](https://github.com/junior-devleague/GameProductionProgram/tree/master/GameMusicComposition/Week3)

<http://ciocan.github.io/angular-wheel-rhythm/>

REVIEW

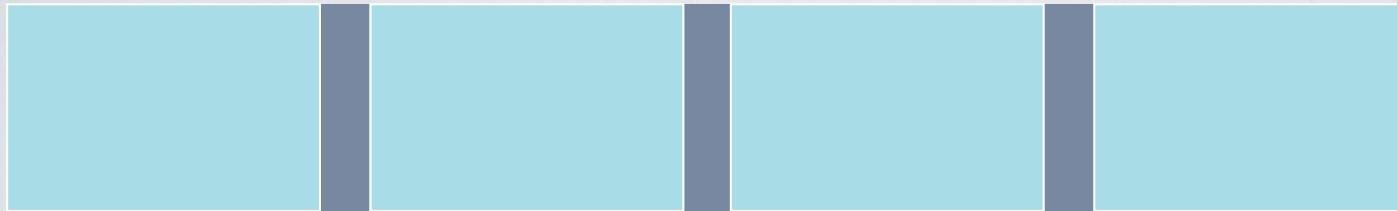


I BAR



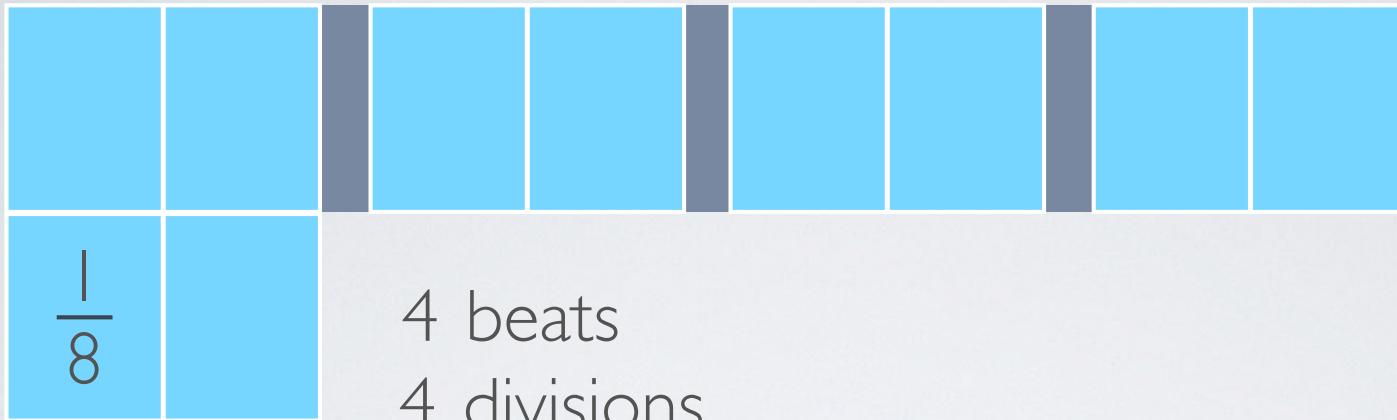
I BAR

4 divisions

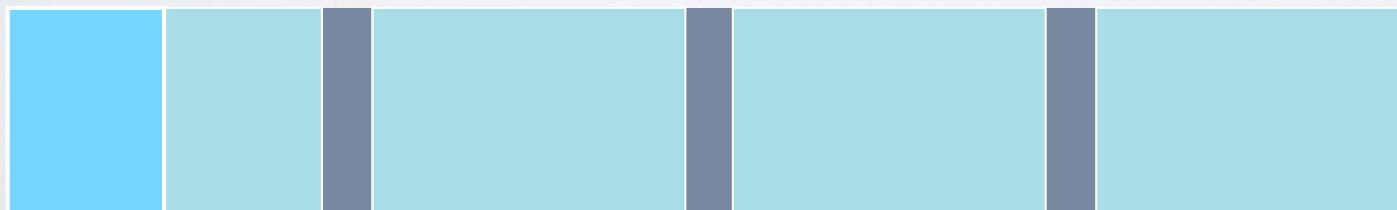


I BAR

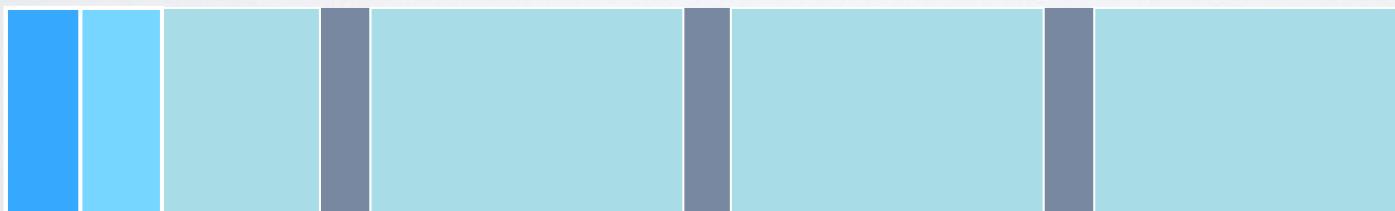
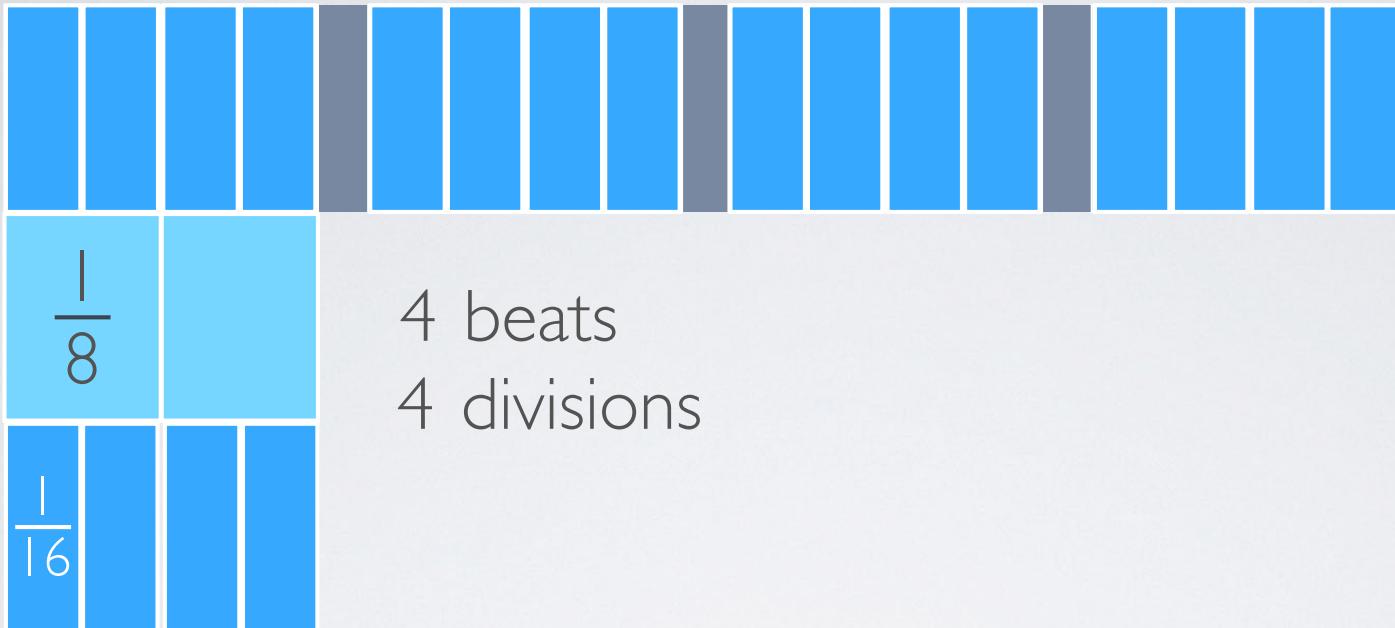
4 beats  
4 divisions

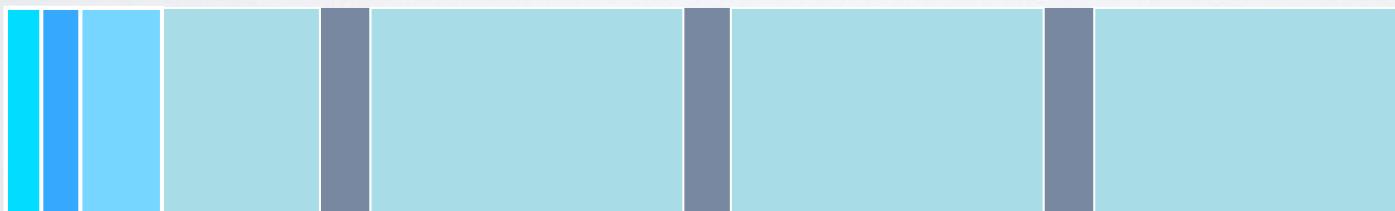
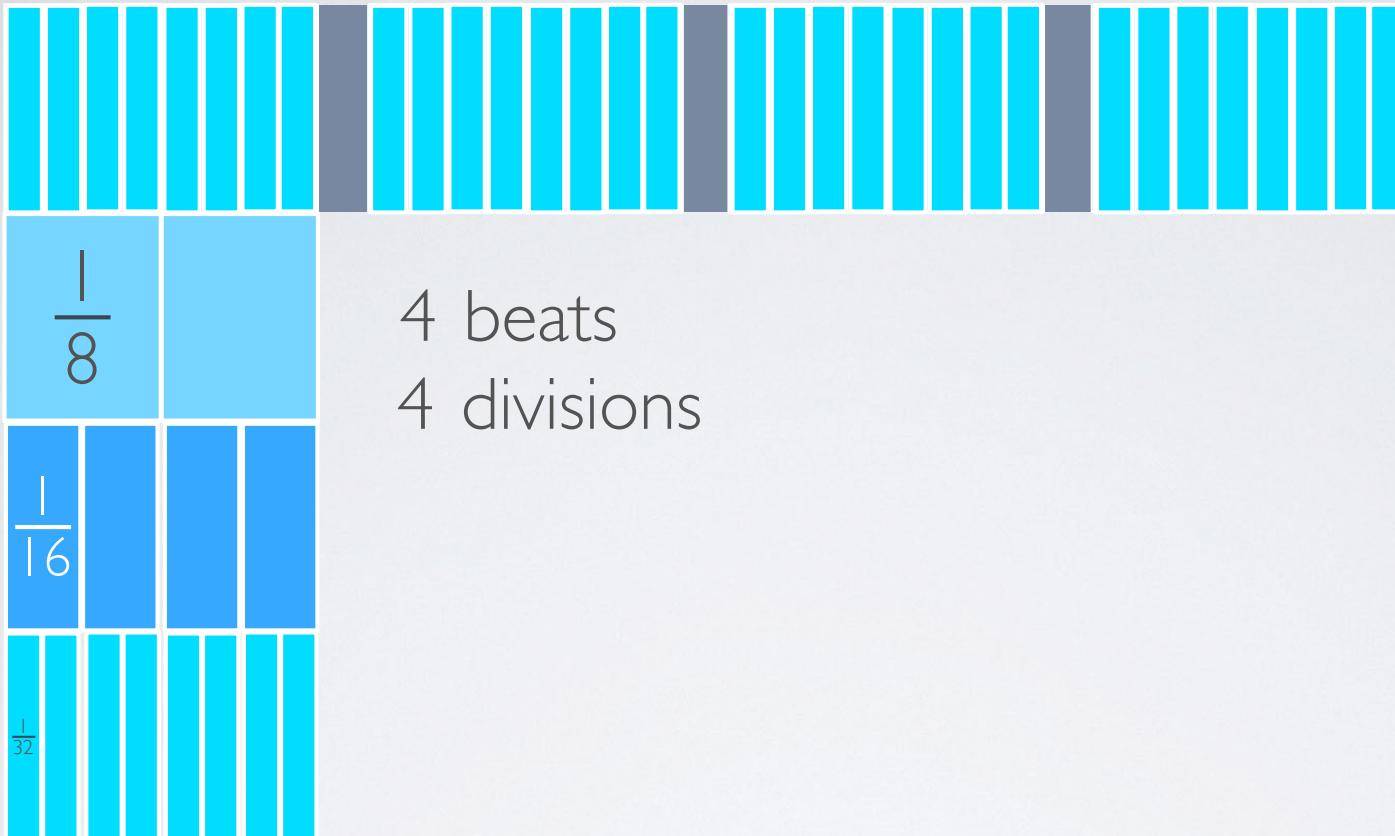


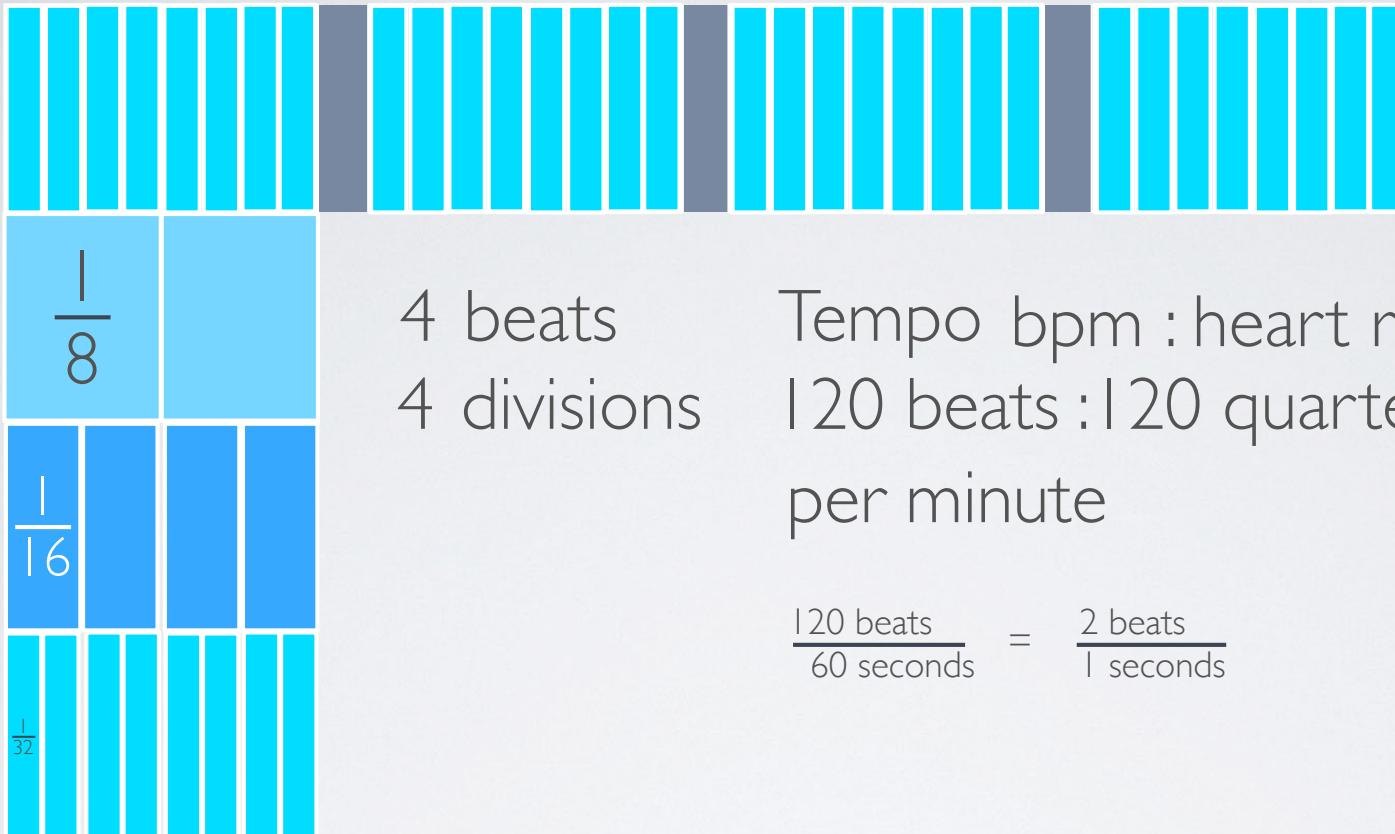
I BAR



I BAR

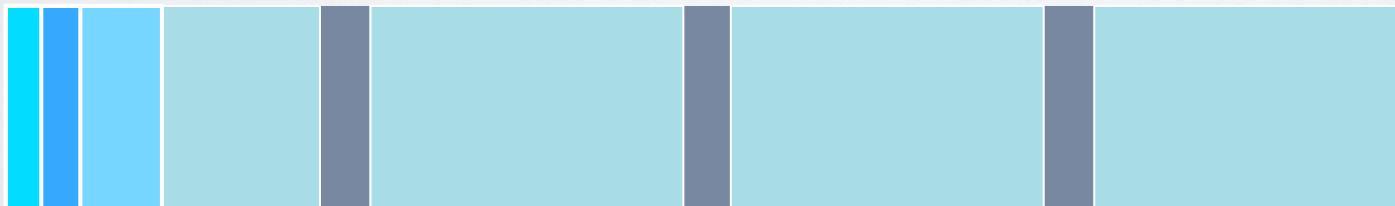






Tempo bpm : heart rate  
120 beats : 120 quarter notes per minute

$$\frac{120 \text{ beats}}{60 \text{ seconds}} = \frac{2 \text{ beats}}{1 \text{ seconds}}$$



2 beats per second  
1 beat per 0.5 second  
1 qtr. note per 0.5second



$\frac{1}{4}$

$\frac{1}{8}$

$\frac{1}{16}$

$\frac{1}{32}$

$\frac{1}{4}$

$\frac{1}{8}$

$\frac{1}{16}$

$\frac{1}{32}$

2 beats per second

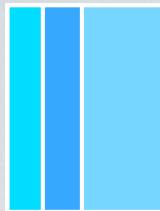
| BAR : MEASURE

play: c4, release: 0.5

play: c4, release: 0.25

play: c4, release: 0.125

play: c4, release: 0.0625

 $\frac{1}{4}$  $\frac{1}{8}$  $\frac{1}{16}$  $\frac{1}{32}$  $\frac{1}{4}$  $\frac{1}{8}$  $\frac{1}{16}$  $\frac{1}{32}$ 

2 beats per second

| BAR : MEASURE

use\_bpm 120

play: c4

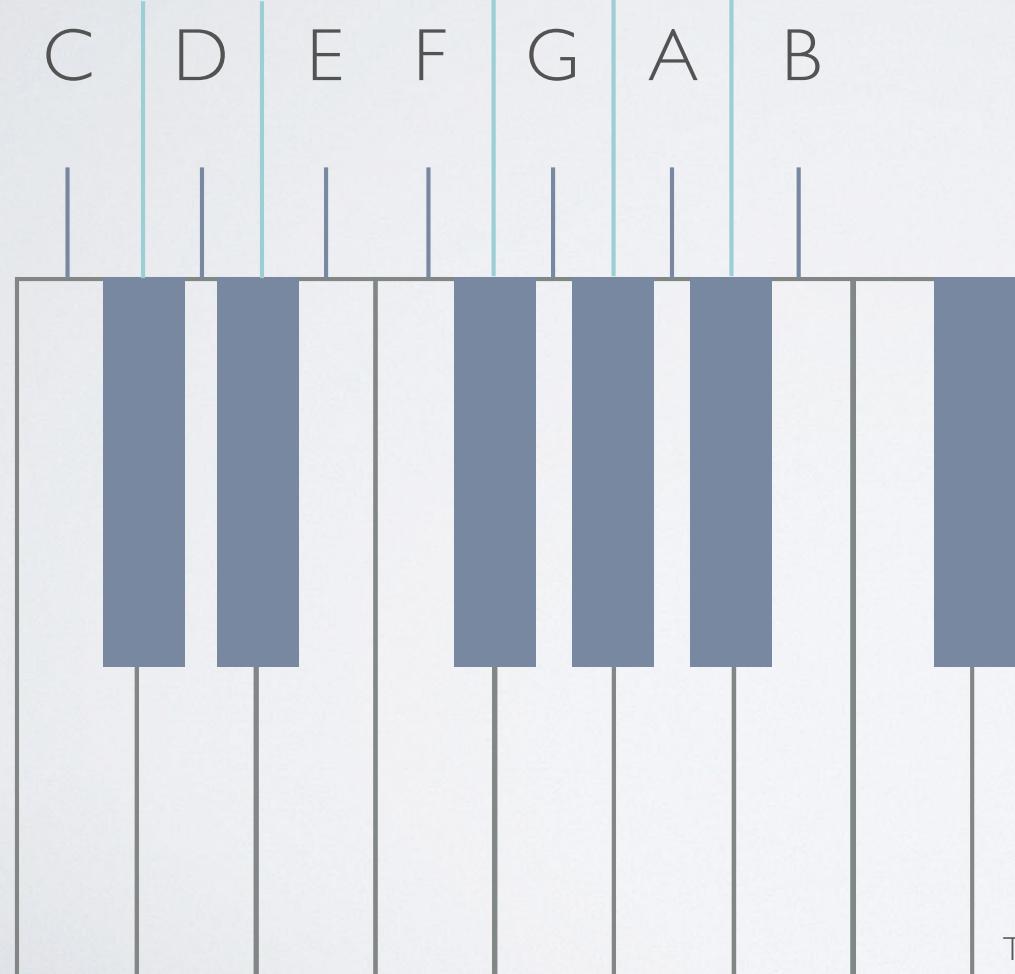
play: c4, release: 0.5

play: c4, release: 0.25

play: c4, release: 0.125

8	120	121	122	123	124	125	126	127					
7	108	109	110	111	112	113	114	115	116	117	118	119	
6	96	97	98	99	100	101	102	103	104	105	106	107	
5	84	85	86	87	88	89	90	91	92	93	94	95	
4	72	73	74	75	76	77	78	79	80	81	82	83	
3	60	61	62	63	64	65	66	67	68	69	70	71	
2	48	49	50	51	52	53	54	55	56	57	58	59	
1	36	37	38	39	40	41	42	43	44	45	46	47	
0	24	25	26	27	28	29	30	31	32	33	34	35	
-1	12	13	14	15	16	17	18	19	20	21	22	23	
-2	0	1	2	3	4	5	6	7	8	9	10	11	

MIDI no.



## Octave

The numbers refer to note at different octave range and pitch  
12 pitches

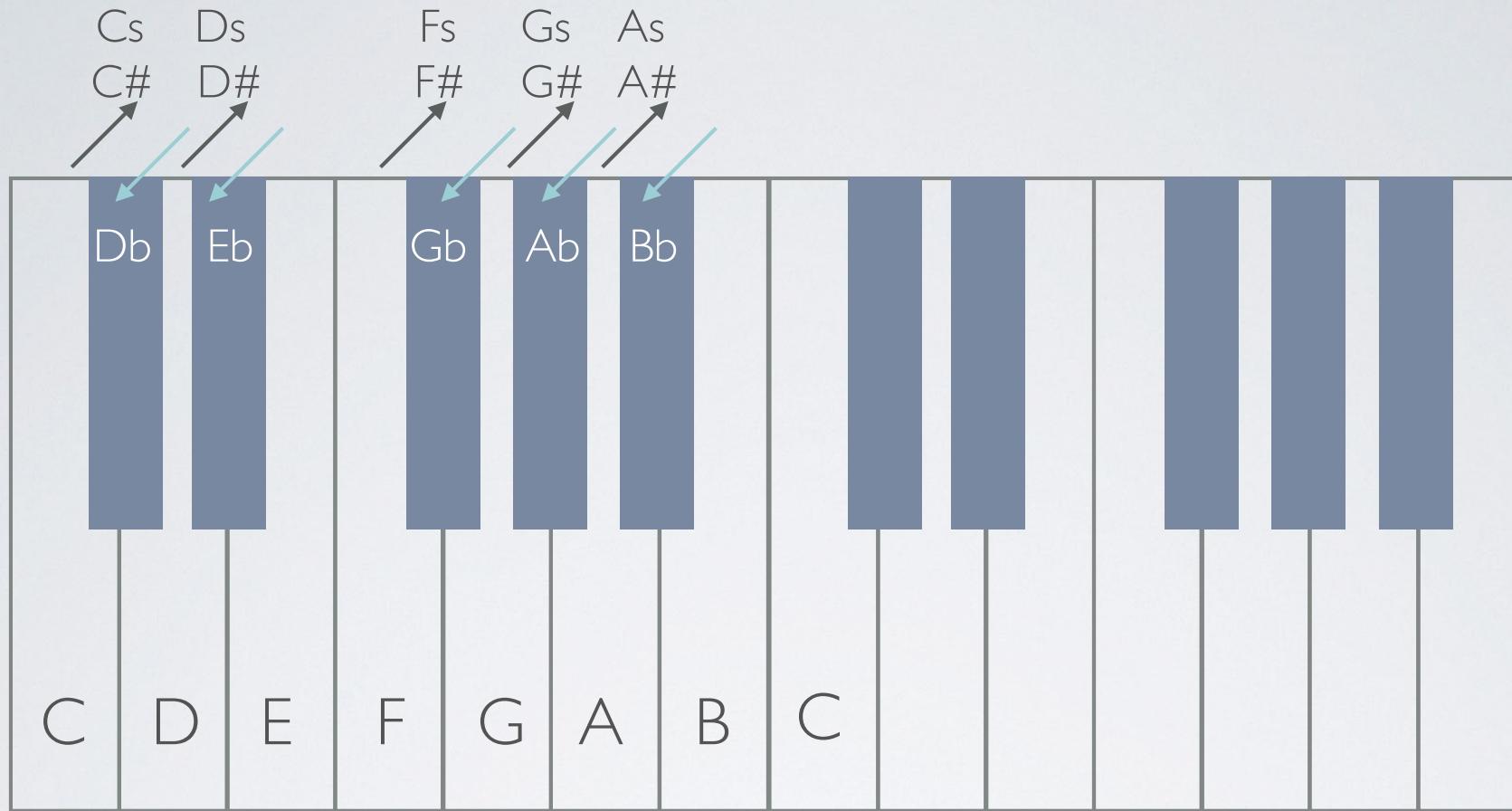
Basic MIDI Chart

These are the numbers translated in Sonic PI when you type pitches

HARMONY

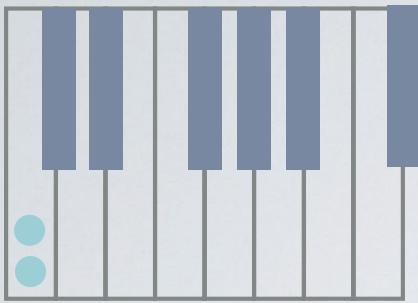
# AN INTERVAL IS...

- An interval is the difference of (at minimal) two pitches.

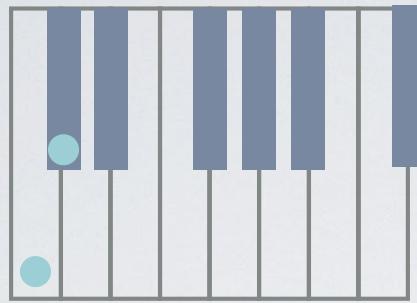


Semitones | half steps

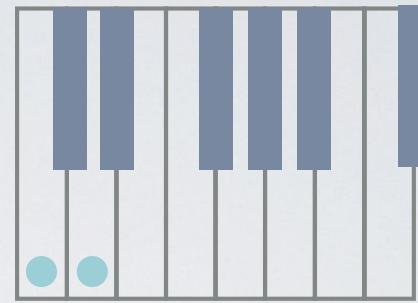
Identify a whole step



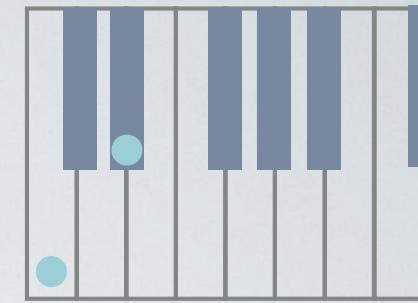
prime/unison



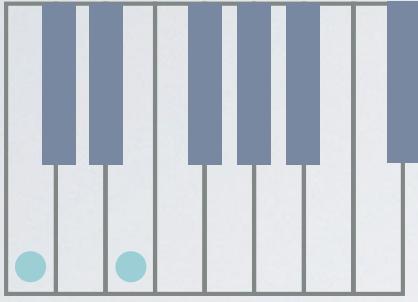
minor second



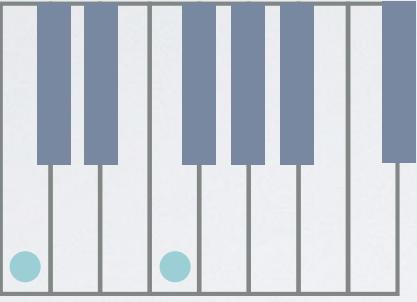
major second



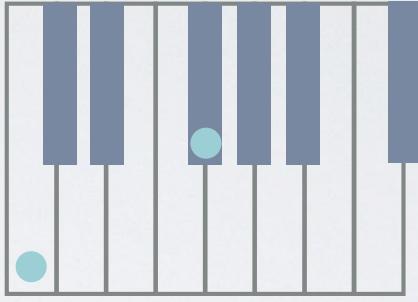
minor third



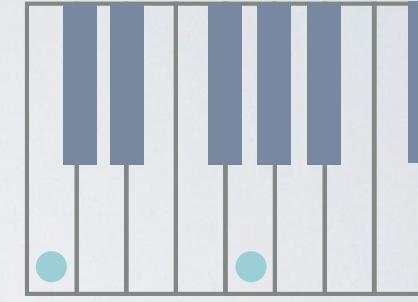
major third



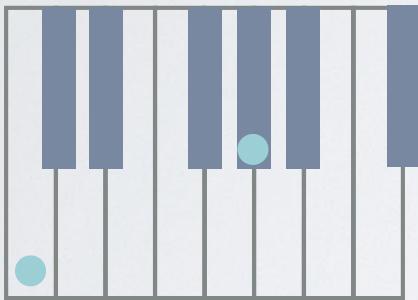
perfect fourth



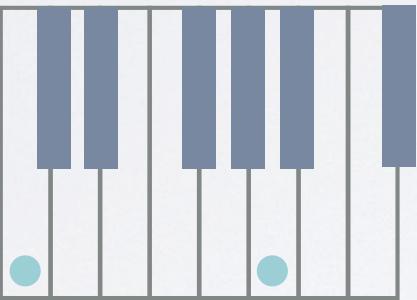
augmented fourth



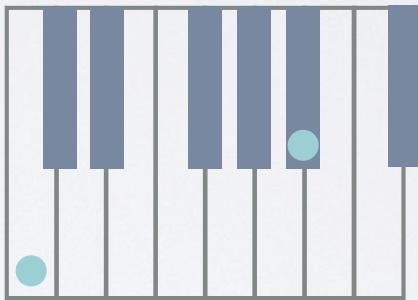
perfect fifth



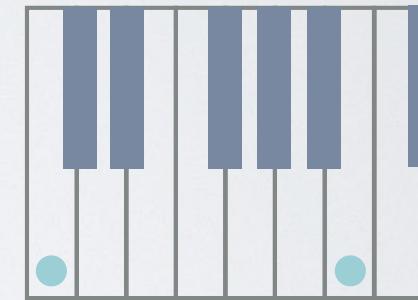
minor sixth



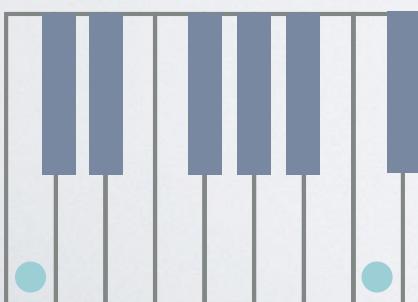
major sixth



minor seventh



major seventh



octave

13 interval harmonies in the octave via C note

Exercise| Translate this to sequence steps

<http://onlinesequencer.net/>

# Exercise | Sequence|Code in SonicPI

1. Unison

2. Octave

3. Perfect fifth

4. Perfect fourth

5. Major third

6. Minor sixth

7. Minor third

8. Major sixth

1. Major second

2. Minor seventh

3. Minor second

4. Major Seventh

5. Augmented fourth

mild dissonance

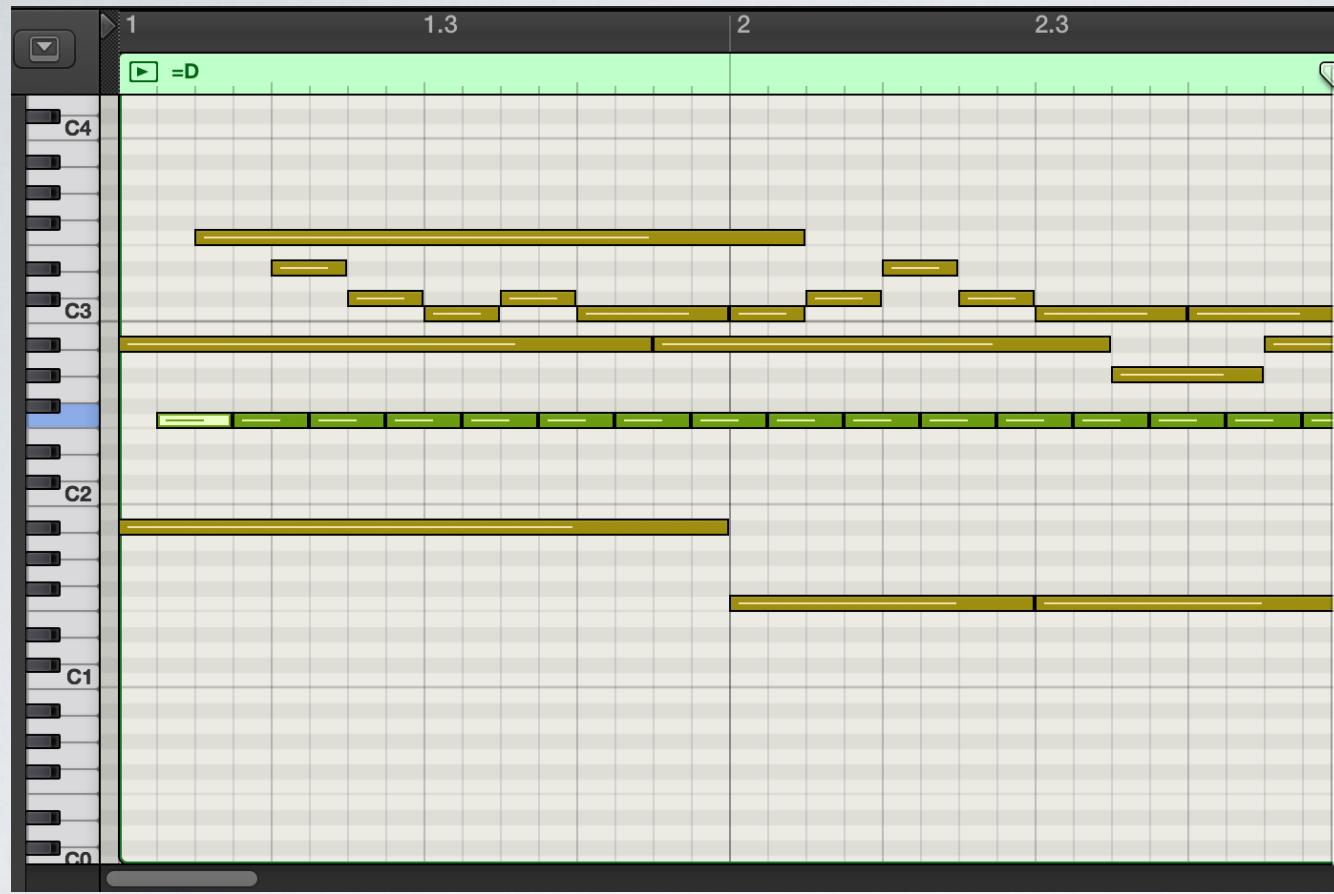
severe dissonance

Perfect to imperfect consonance

# Exercise | Sequence|Code in SonicPI

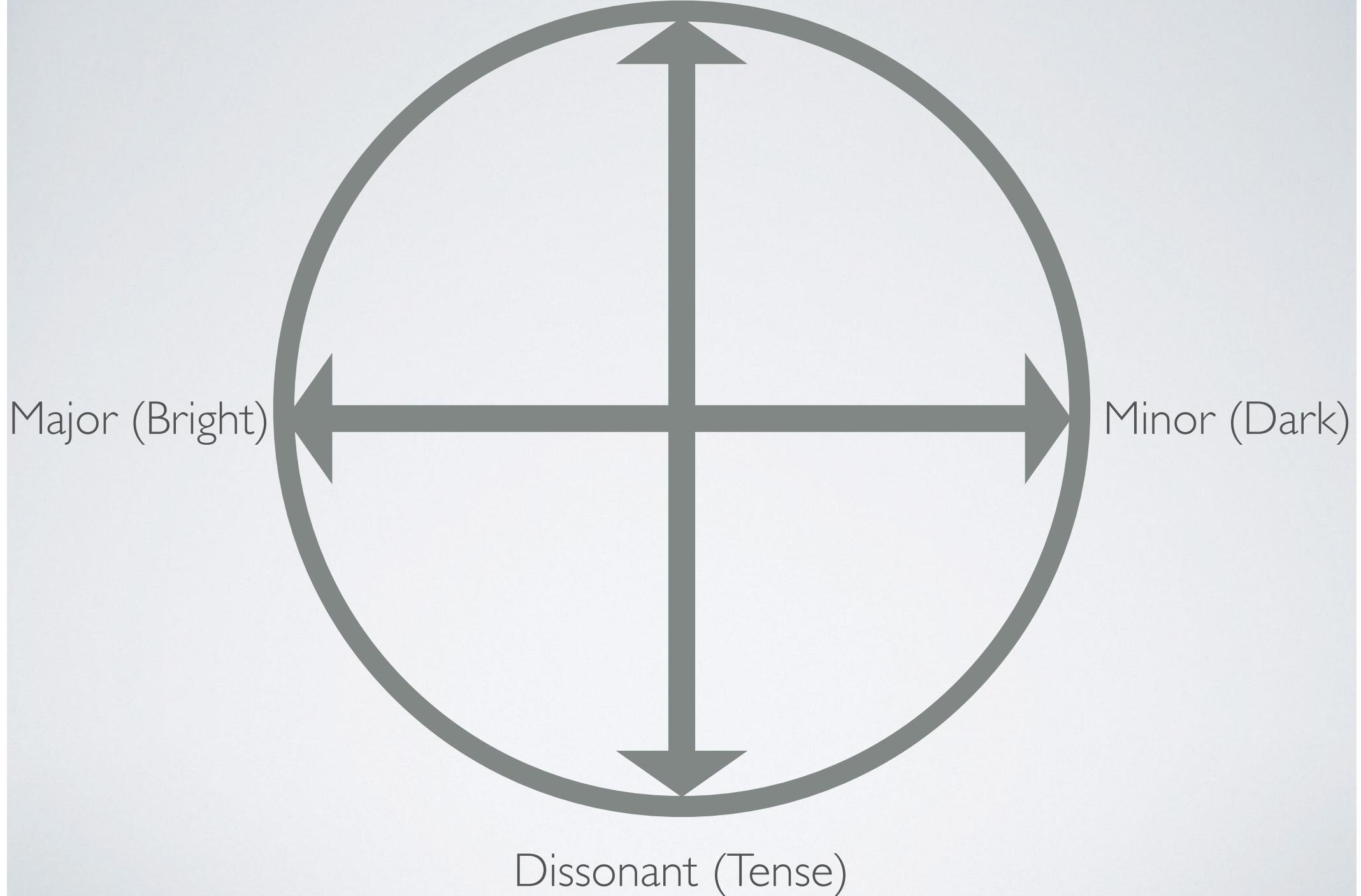
- 1. Prime or unison
- 2. Octave
- 3. Perfect fifth
- 4. Perfect fourth
- 5. Major third
- 6. Minor sixth
- 7. Minor third
- 8. Major sixth
- 9. Major second
- 10. Minor seventh
- 11. Minor second
- 12. Major seventh
- 13. Augmented fourth/diminished fifth

Graduated spectrum of consonant to dissonant intervals



- Chordal Values
  - Simple intervals | intervals that span 8 scale steps and under
    - prime/unison, second, third, fourth, fifth, sixth, seventh and octave
  - Compound intervals | intervals that span more than 8 steps
    - ninth (compound second), tenth (compound third)
    - ...

Consonant (Peaceful)



**Table 2.1** Perceived Correlation between Emotions and Interval Harmonies

Interval	Notes	Emotion
Unison	C/C	Pleasing, peace
Octave	C/C	Pleasing, peace
Perfect fifth	C/G	Joy, triumph, courage
Perfect fourth	C/F	Excitement, contentment
Major third	C/E	Harmony, peace, joy
Minor sixth	C/Ab	Harshness, meanness, confusion
Minor third	C/Eb	Sadness, sorrow, annoyance, gloominess
Major sixth	C/A	Sweet, enjoyable, pleasing
Major second	C/D	Sadness, strangeness, tension
Minor seventh	C/Bb	Sadness, dismay, sorrow
Minor second	C/Db	Harshness, sinister, confusion, shock
Major seventh	C/B	Surprise, suspicion
Augmented fourth	C/F#	Suspense, shock, sorrow

# INTERACTIVE MUSIC

- Improvisational Construction: Variation and Form
- Real-Time Composition and Arranging
- Performance-Based Dynamics and Tempo Changes
- Experimental Composition Techniques
- Instrumental Design and User Interactive Performance

## Questions

In your five songs per week, identify the harmonic intervals in four measures.

Code that into Sonic-PI and upload into your week2/  
name/ in Github

“@asis” if you have any questions

# Collaborate with a Game Developer

[NEWS](#)[LEARN](#)[DOWNLOAD](#)[EXAMPLES](#)[COMMUNITY](#)[PLUGINS](#)

## Desktop and Mobile HTML5 game framework

A fast, free and fun open source  
framework for Canvas and WebGL  
powered browser games.

**DOWNLOAD & GET STARTED**  
Download or Fork via Github



# GAME MECHANICS



Phaser.io

3 physics engine

-P2: a full featured physics system on collision

-Ninja: movement on objects like tile maps and slope

-Arcade: a system that only deals with rectangle collisions (called AABB)--serves best performance

e.g.,

```
game.physics.startSystem(Phaser.Physics.ARCADE);
```

Looks of the game. Keep the sprites CRISP!

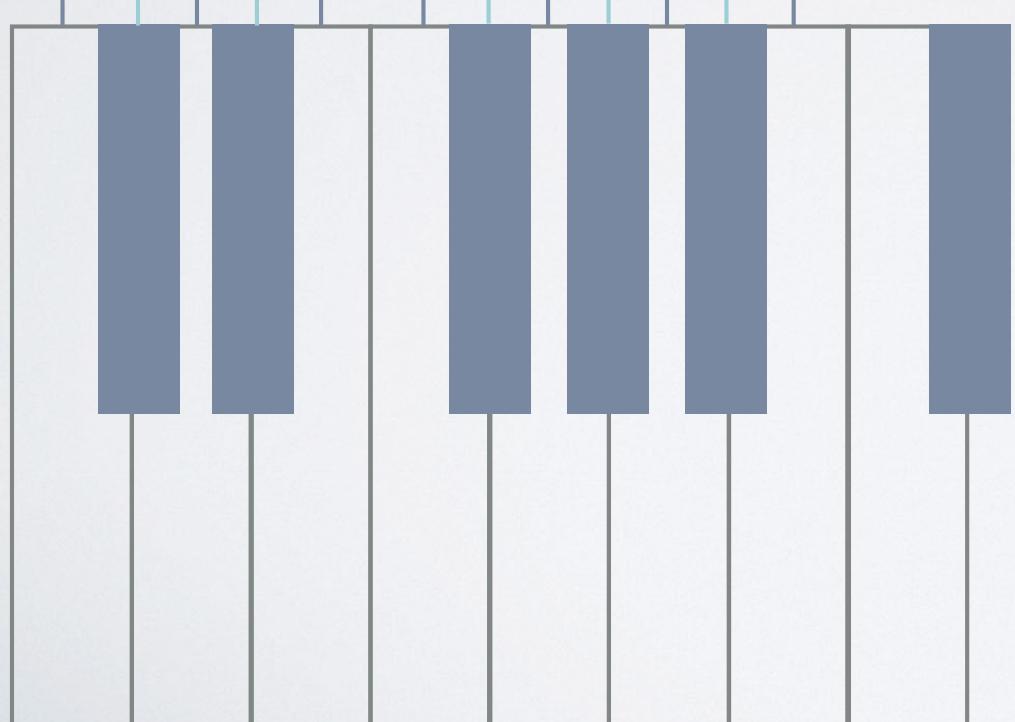
```
game.renderer.renderSession.roundPixels= true;
```

120	121	122	123	124	125	126	127					
108	109	110	111	112	113	114	115	116	117	118	119	
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12	13	14	15	16	17	18	19	20	21	22	23	
0	1	2	3	4	5	6	7	8	9	10	11	
-1	0	1	2	3	4	5	6	7	8	9	10	

Octave

MIDI no.

C D E F G A B



# COMMON

- Real-Time Melodic Variation

