

## Qoopers series course

Section 9

《The Cavalier B》

# Curriculum objectives

## **Knowledge and skill**

1. Learn about the usage of buzzer, understand relative knowledge of music score;
2. Complete the programming of simple numbered musical notation and play nursery rhymes;

## **Process and methods**

1. Through curriculum task, exercise students to differentiate tonality, improve thinking ability;

## **Emotional attitude and values**

1. Improve students' interest toward music by understanding music knowledge.



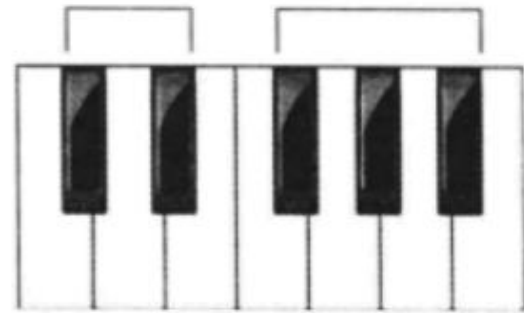
The Cavalier loves music, and piano is its favourite. To be a music creator and perform music for members of Qoopers is the dream that it mostly wants to achieve.

## Music General Knowledge

There are white and black keys on the keyboard of piano, seven basic sound levels that the musical alphabet, which used in music are C\D\E\F\G\A\B, are all on the white key, black keys on the keyboard can be divided into two groups that set of two and triad.

Two for a group

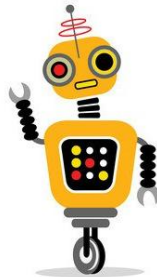
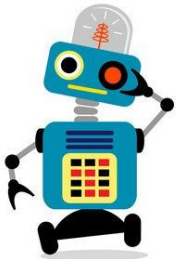
Three for a group



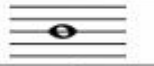
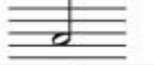



Musical alphabet :

Syllable names :

C	D	E	F	G	A	B
do	re	mi	fa	sol	la	si



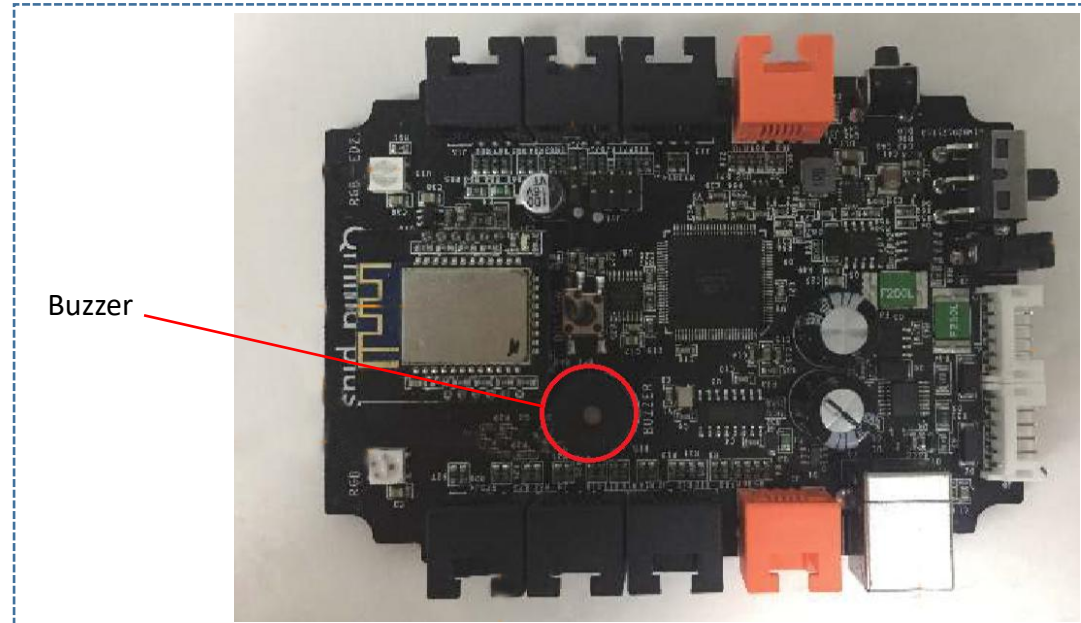
## Music General Knowledge

Note name	Stave	Numbered musical notation	Duration
Whole note		X - - -	a bar
Halfnote quarter		X -	2 beats
Note		X	1 beat
Eighth note Sixteenth		<u>X</u> <u>XX</u>	1/2 beats
Note		<u>X</u> <u>XXXX</u>	1/4 beats

In the music score, musical note, numbered musical notation and stave all have common relation, so performer can play music in accordance with stave or numbered musical notation.

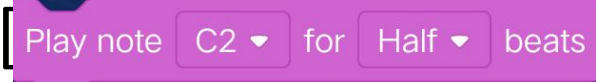
The music, created by the Cavalier, all phonate by buzzer that installed main control board.

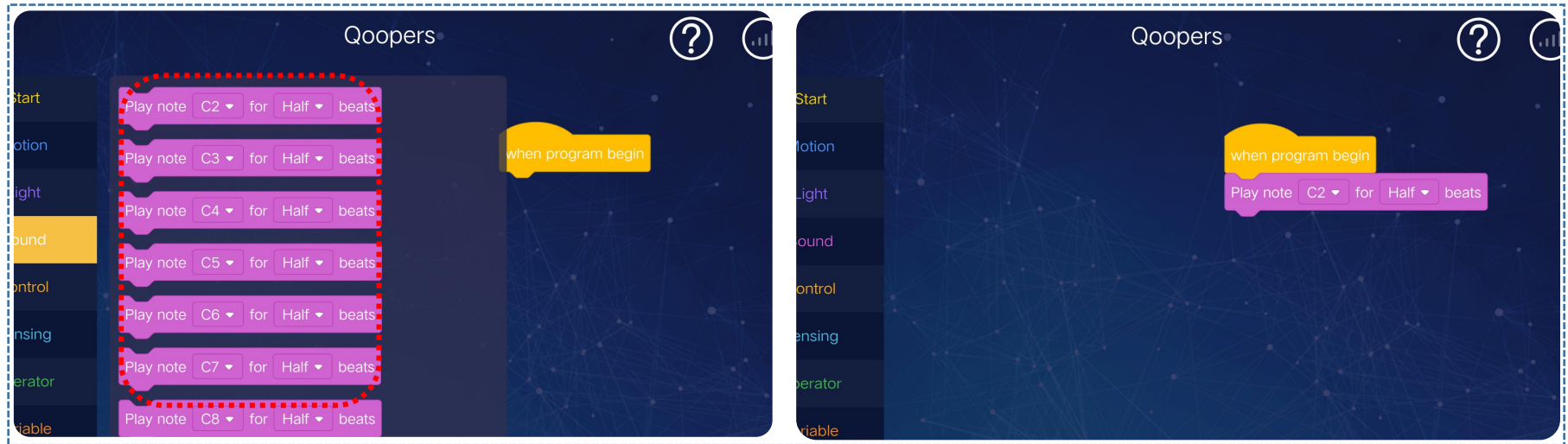
The buzzer would output voice frequency signal according to signal indicator when there are signals get in, then piezoelectric buzzer will phonate different kinds of sound.



# Knowledge explanation

In programming, choose

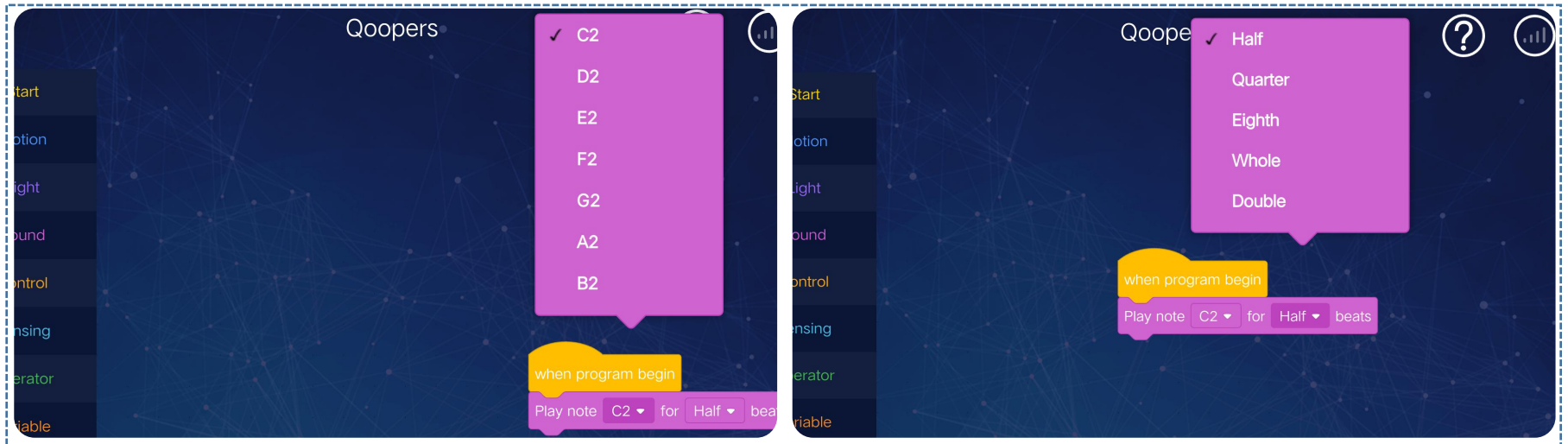
icon  , which in the sound module, drag it into programming area, set tonality and beats. There are C2-C8 tonality to choose in icon.





# Knowledge explanation

In tonality icon, click on different tonality that choose from C2-B2 to set different beats.



The image displays two side-by-side screenshots of the Scratch 'Qoopers' project interface, illustrating the configuration of a 'Play note' block.

**Left Screenshot:** Shows the 'Play note' block with the tonality dropdown menu open, displaying a list of notes: C2 (checked), D2, E2, F2, G2, A2, and B2. The 'when program begin' block is highlighted in yellow.

**Right Screenshot:** Shows the 'Play note' block with the beats dropdown menu open, displaying a list of beat values: Half (checked), Quarter, Eighth, Whole, and Double. The 'when program begin' block is highlighted in yellow.

The 'Play note' block in both screenshots is configured with 'C2' for tonality and 'Half' for beats.



According to a numbered musical notation, write a music procedure in software after learning. the usage of tonality and beats

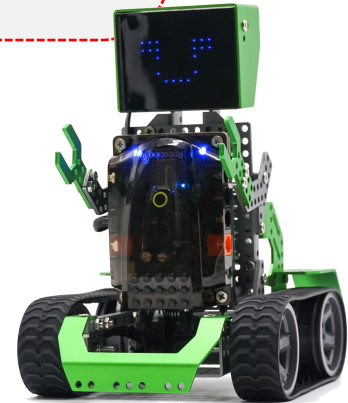


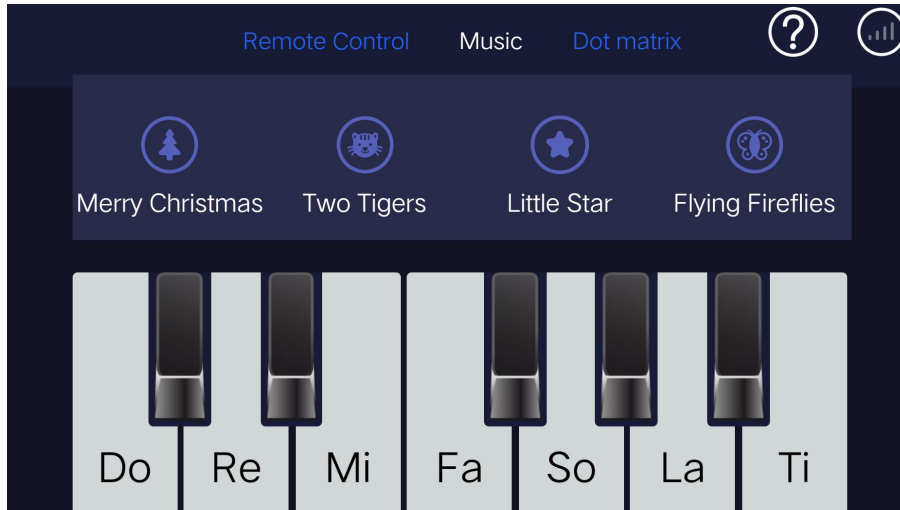
1 · 2 3 4      5 6 7  
do re mi fa      sol la si,

# Programming

```
when program begin
  play note C5 for Eighth beats
  wait 0.2 secs
  play note D5 for Eighth beats
  wait 0.5 secs
  play note E5 for Eighth beats
  wait 0.2 secs
  play note F5 for Eighth beats
  wait 0.5 secs
  play note G5 for Eighth beats
  wait 0.2 secs
  play note A5 for Eighth beats
  wait 0.2 secs
  play note B5 for Quarter beats
```

On the basis of reference procedure, write numbered musical notation music procedure, while combine light and turn of electrical machinery that we learned to let the Cavalier playing music as well as coordinating with light and motion.



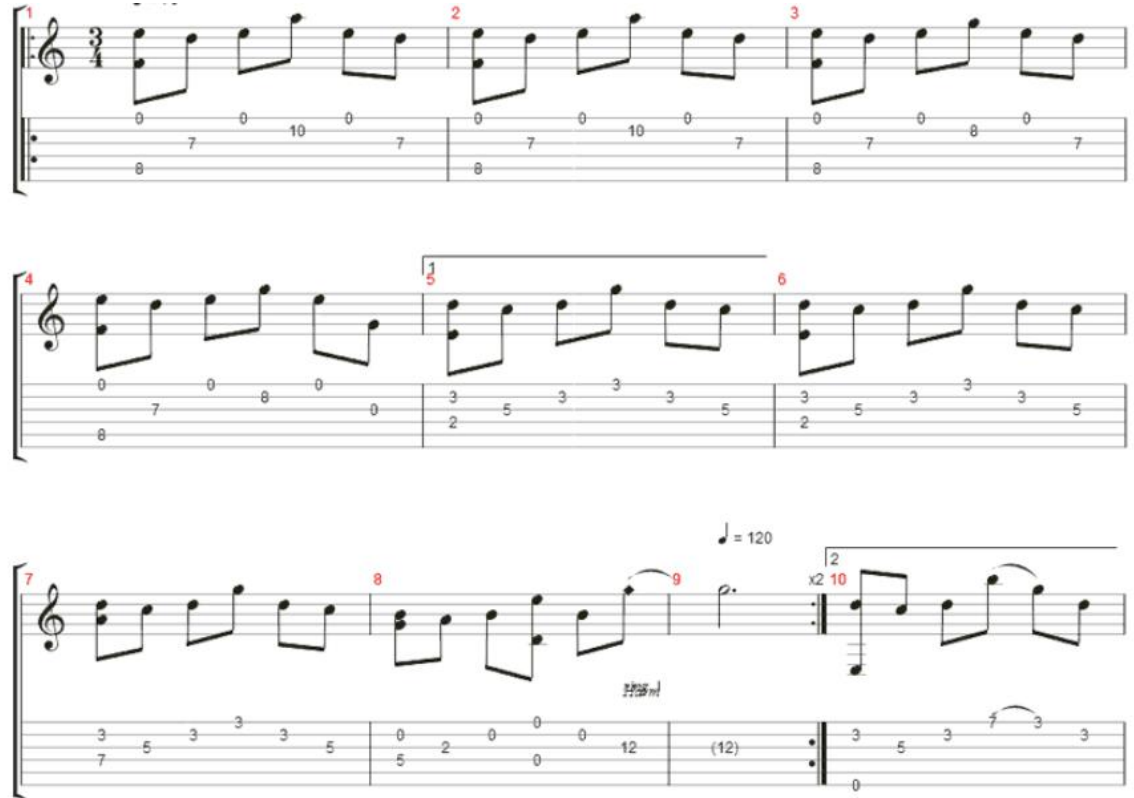


Through programming the Cavalier can play music, the built-in music mode after bluetooth was connected also is a way that the Cavalier write music.

Under the music mode, play four finished songs with piano's black and white key.

# Extends

This is music score of «Merry Christmas» at right, try to play songs on the basis of music score knowledge and using music mode's black and white keys.



The image displays a musical score for the song "Merry Christmas" in 3/4 time. The score is presented in three systems, each with a treble clef and a guitar chord diagram below the staff. The first system contains measures 1, 2, and 3, with red numbers 1, 2, and 3 above the first notes of each measure. The second system contains measures 4, 5, and 6, with red numbers 4, 5, and 6 above the first notes. The third system contains measures 7, 8, 9, and 10, with red numbers 7, 8, 9, and 10 above the first notes. Measure 10 is marked with a double bar line and a repeat sign. The tempo is indicated as  $\text{♩} = 120$ . The guitar chord diagrams use numbers 0-12 to represent frets on the strings.

1. Why the Cavalier could make a sound?
2. What is the relationship between note and beats in music score?



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**Company:** Robobloq Co., Ltd

**Address:** Room 208, Building B53, Zhongchuang Industrial Park, Liuxian Avenue, Taoyuan Street, Nanshan District of Shenzhen

**E-mail:** [hello@robobloq.com](mailto:hello@robobloq.com)

**Telephone:** + 86-0755 -26926929

**Website:** <http://www.robobloq.com>