# Cat & Mouse Coding Supplement

This file includes all the code that students will need in order to create the Cat & Mouse video game project described in our 10-part video series. Students are encouraged to put their own spin on the project via customizations, but should be able to demonstrate at the end of each of the 10 chapters that they've accomplished the learning goal set out in each segment.

Along with code block images, this document includes:

- Specific learning goals for each chapter that will allow teachers to quickly confirm that students are following instructions.
- Guiding questions that can be discussed prior to each new chapter
- Troubleshooting tips gleaned from prior lessons
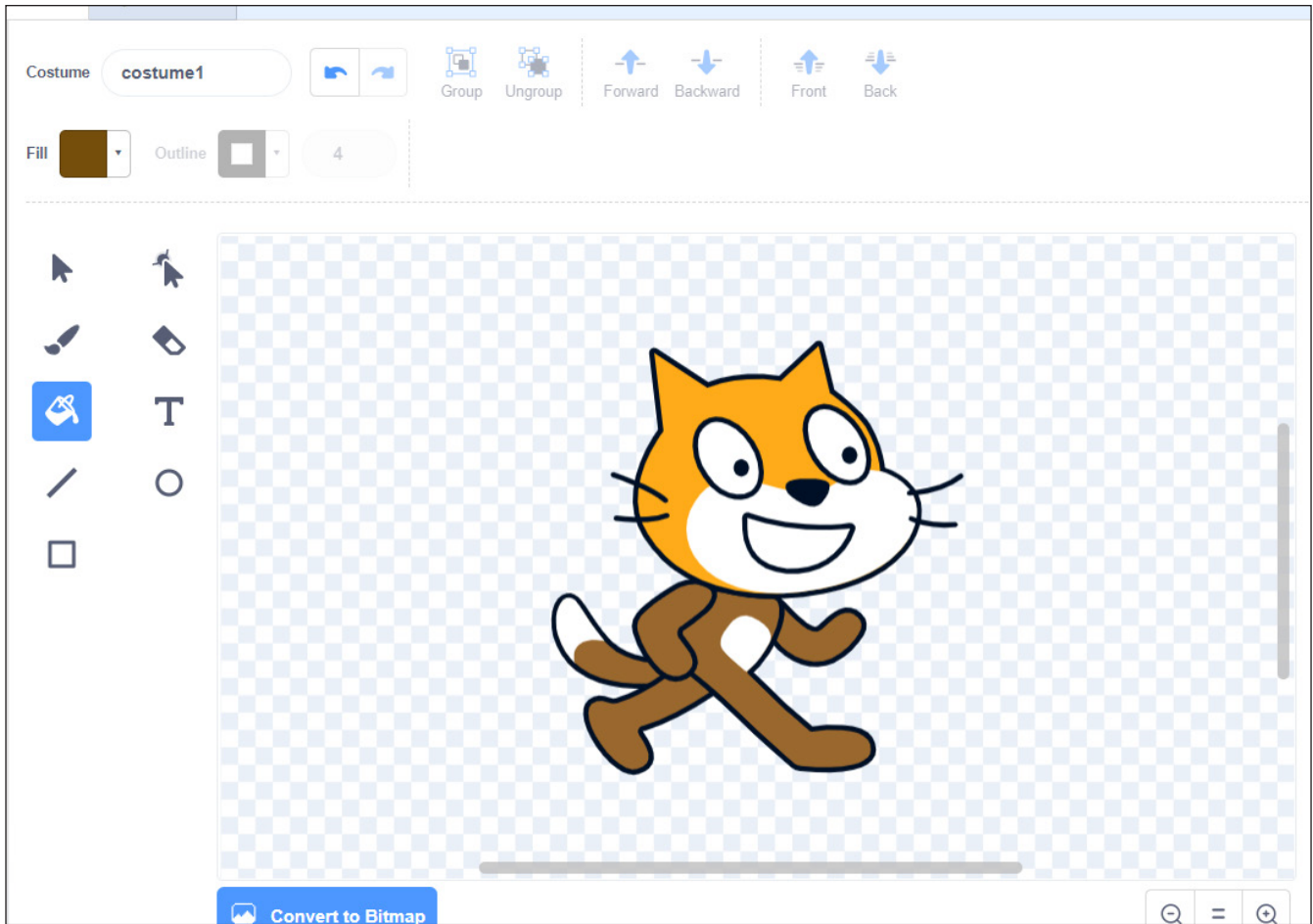
Cat & Mouse Coding Supplement
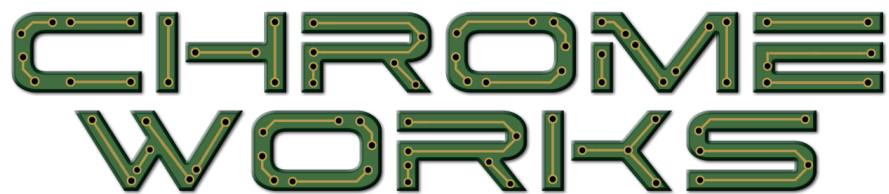
Founder and lead instructor   Andrew Tomec, OCT
Learning Design Advisor   Glenn Boustead, OCT

GOAL: Select and customize 2 sprites

What do we need to program our cat character to do?
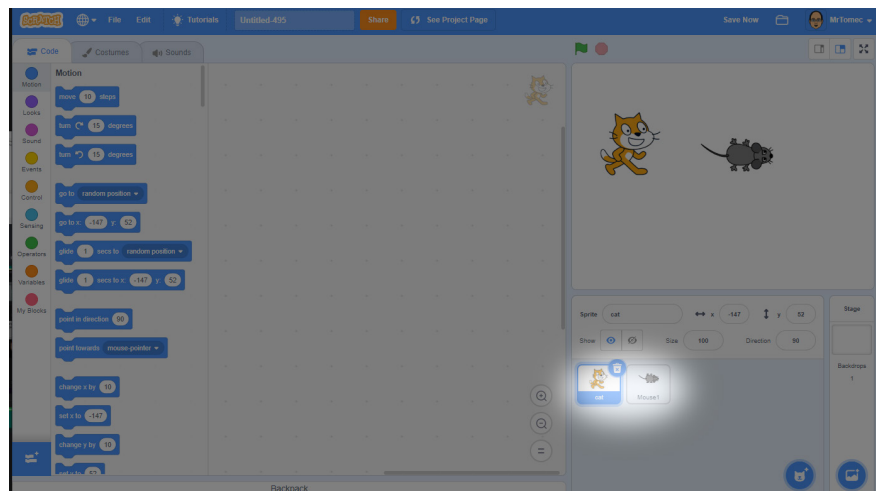
2

GOAL: Teach the cat to follow your cursor

```
when [flag] clicked
forever
    point towards mouse-pointer ▼
```
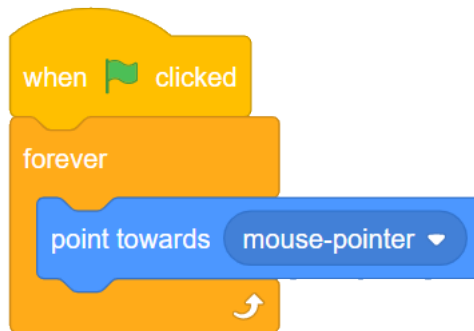
Troubleshooting

Sometimes kids will confuse the Point Towards block with this one.

```
point in direction 90
```

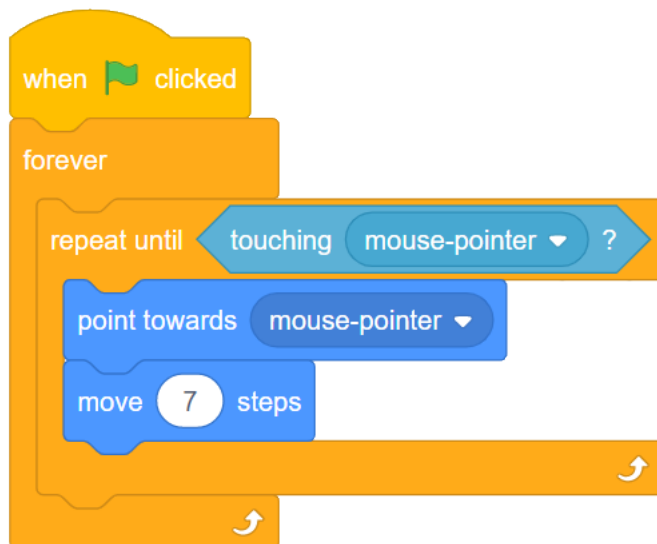**CHECK POINT** ✓ Cat spins to follow player's mouse cursor

? What's the next thing we need to teach Scratch to do?

3

GOAL: Teach the cat to move

```
when [flag] clicked
forever
    repeat until < touching mouse-pointer ▼ ? >
        point towards mouse-pointer ▼
        move 7 steps
```
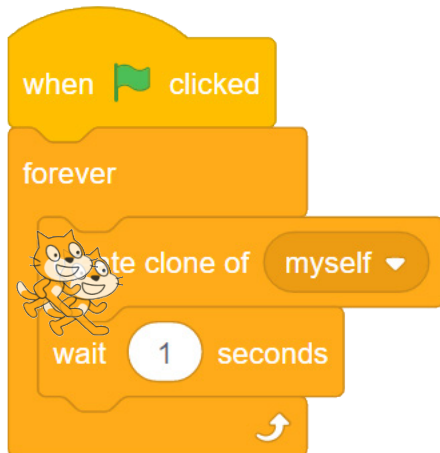
CHECK POINT ✓ Cat moves where commanded and stops when it gets there

? We've programmed our cat? What do we need our mice to do?

4

GOAL: Spawn a steady stream of new mice

```
when 🏳 clicked
forever
    create clone of [myself ▾]
    wait (1) seconds
```

```
when I start as a clone
go to [random position ▾]
```

CHECK POINT The screen is full of mice

? What could we do to slow down 'birth rate' of the mice?

⚙🔍 Troubleshooting
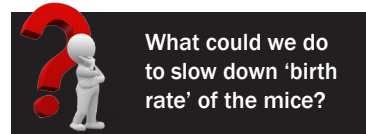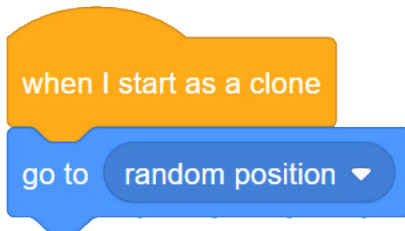
Make sure students are coding the mouse sprite. Each sprite has its own unique set of instructions, and placing commands in the wrong spot will cause unexpected results.

5

GOAL: Teach the mice to move realistically across the screen

```
when 🏳 clicked
hide
forever
    create clone of [myself ▾]
    wait (1) seconds
```

```
when I start as a clone
show
go to [random position ▾]
point in direction (pick random (1) to (360))
forever
    move (2) steps
    if on edge, bounce
    next costume
```

CHECK POINT Mice are moving randomly, bouncing and animating

? Is this a 'game' yet? What's missing?

```
when [flag] clicked
hide
forever
    create clone of [myself ▼]
```

```
when I start as a clone
show
go to [random position ▼]
point in direction (pick random (1) to (360))
forever
    move (2) steps
    next costume
    if on edge, bounce
    if <touching [cat ▼] ?> then
        delete this clone
```

CHECK POINT ✓ Mice vanish when touching the cat

? How do we track our progress while playing the game?

7

```
when [flag] clicked
set score to 0
hide
forever
    create clone of myself
```

```
when I start as a clone
show
go to random position
point in direction pick random 1 to 360
forever
    move 2 steps
    next costume
    if on edge, bounce
    if touching cat ? then
        change score by 1
        delete this clone
```

CHECK POINT Score changes every time a mouse is eaten. Score resets between games
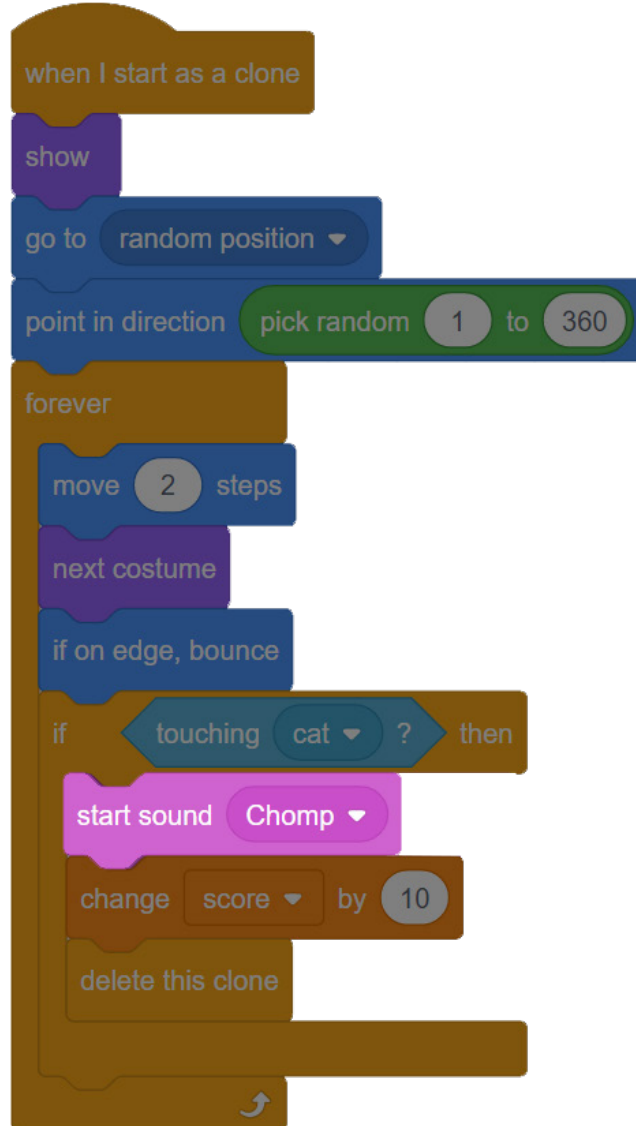
What are some appropriate spots to add sound effects?

Troubleshooting

Confirm that the variable you are setting is "score" and not the default variable, "my variable."

GOAL: Enhance the game with sound effects

```
when I start as a clone
show
go to  random position ▼
point in direction  pick random  1  to  360
forever
  move  2  steps
  next costume
  if on edge, bounce
  if  touching  cat ▼  ?  then
    start sound  Chomp ▼
    change  score ▼  by  10
    delete this clone
```

```
when 🚩 clicked
forever
  play sound  Elec Piano Loop ▼  until done
  play sound  Drum Jam ▼  until done
```

**CHECK POINT** ✔ Sound effect plays when mice eaten. Background music plays constantly.
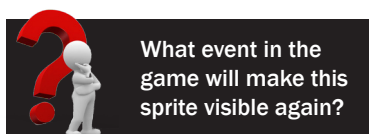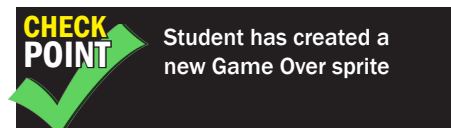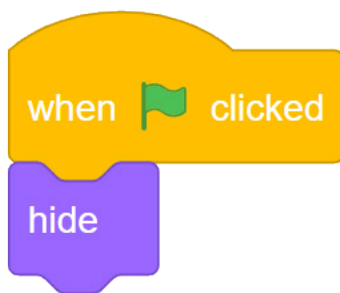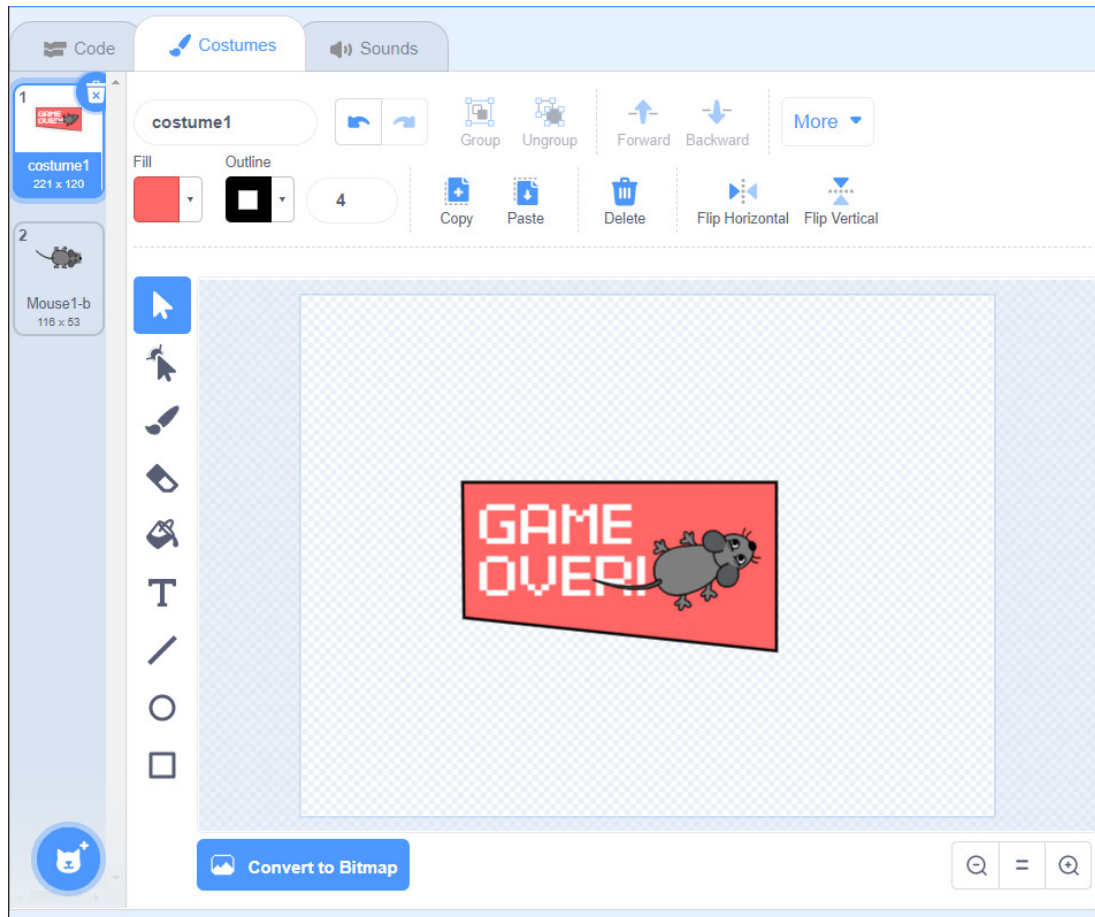
? What are some ways we could end the game?

🔍 Troubleshooting

Start sound and Play Sound Until Done commands appear to do the same thing, but they are not interchangeable.

Sounds that have been loaded into a sprite are only available to that sprite. If a sound that you've loaded doesn't appear on the list, check your other sprites.
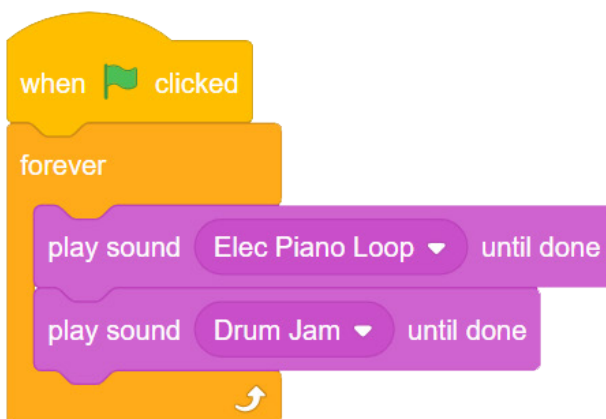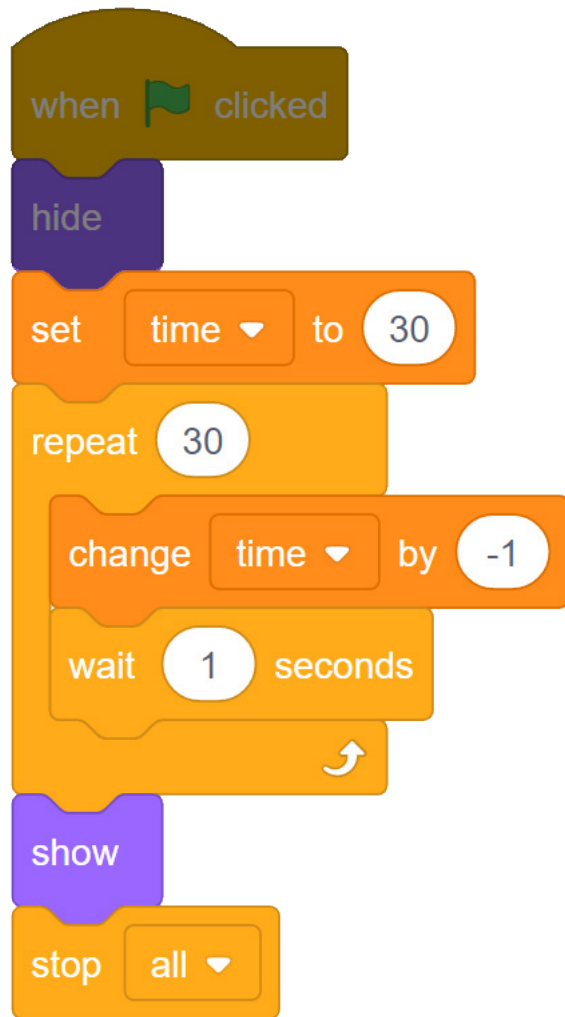
GOAL: Design a Game Over screen

Troubleshooting

Students who've never used graphic design software will sometimes have trouble understanding that they have to switch to a different tool to modify their drawing. They'll draw a rectangle with the appropriate tool, and then forget to switch to the black arrow tool to modify it. If you see multiple overlapping boxes on their screen, it's probably this issue.

CHECK POINT Student has created a new Game Over sprite

What event in the game will make this sprite visible again?

GOAL: End game after the timer runs out

```
when 🚩 clicked
hide
set time to 30
repeat 30
    change time by -1
    wait 1 seconds
show
stop all
```

CHECK POINT ✓ Timer counts down and game ends when it reaches zero.

? What is a remix? What are some of the ways you might remix this game