

GeekClub Cheat Sheet

Create canvas & show banners:

```
create_canvas()
create_canvas('My game title')
create_canvas(canvas_width=1600,
              canvas_height=800)

# Banners
banner('Welcome')
clear_banner()

# Display for 1 second
banner('Next level!', 1000)
```

Variables:

```
world = Struct(score=0, level=1)
world.player =
    ImageSprite('my_images/face.gif')
world.aliens = [] # empty list to start
world.aliens.append( ImageSprite... )

show_variable('Score', world.score)
# or
show_variables([
    ('Score', world.score),
    ('Level', world.level)
])
```

User input:

```
age = askinteger(title, prompt)
name = askstring(title, prompt)
```

Repeated actions:

```
# Define a function then hook up to...

forever(move.aliens, 50)
# or
future_action(next_level, 60 * 1000)
```

Events:

```
# Define a function then hook up
# to an event...

when_button1_clicked(fn)
when_button1_dragged(fn)
when_button2_clicked(fn)

when_key_pressed('w', w_pressed)
when_key_pressed('<Left>', move_left)

when_mouse_enter(fn)
when_mouse_motion(fn)

# Event functions look like this...

def move_left(event):
    # do something

# To end your game
end_game()

# Detect keys in a function
if is_key_down('w'):
    # do something
```

Mouse control:

```
# Where is the mouse?
mousex()
mousey()

# What's the mouse touching?
if mouse_touching(sprite):
    # do something
hit = mouse_touching_any(list_sprites):
    # do something with hit
```

Draw shapes:

```
# Call methods on canvas() to draw...

canvas().create_oval(0,0, 50, 50)
canvas().create_oval(0,0, 50, 50, fill='red')
canvas().create_oval(0,0, 50, 50,
                    fill=random_colour())
canvas().create_oval(0,0, 50, 50,
                    outline=hsb_to_hex(0.5,1,1))

canvas().create_line(0,0, 100, 150)
canvas().create_rectangle(0,0, 10, 20)
canvas().create_text(50,50, text='hi!')

# Convert to a sprite:
circle = canvas().create_oval(0,0, 50, 50,
                              fill='red')
sprite = Sprite(circle)
```

Sprites

Create a sprite from image or shape:

```
sprite = ImageSprite('my_images/face.gif')

shape = canvas().create_oval(0,0, 40,40)
sprite = Sprite(shape)

sprite.delete(self)
```

Sprite attributes:

```
sprite.x
sprite.y
# or
x, y = sprite.pos()

sprite.width
sprite.height
```

Move a sprite:

```
# Move right by 10, down by 5 pixels
sprite.move(10, 5)

# Move to (100,150) from top left
sprite.move_to(100, 150)
# or
sprite centre()
sprite.move_to_random_pos()

sprite.move_towards(x, y, steps)
# e.g.
sprite.move_towards(
    mousex(), mousey(), 5)

# Move along a bearing
sprite.move_forward(10)
sprite.turn(90) # clockwise 90 deg
sprite.turn_to(270)

# Move with speed:
sprite.speed_x = 5
sprite.speed_y = 3
sprite.move_with_speed()
sprite.if_on_edge_bounce()
```

Pen drawing:

```
sprite.pen_down()
# Set colour with hue, 0-255.
sprite.pen_colour(120, s=100, v=100)
# Move to leave a pen trail
sprite.move(50,0)
sprite.pen_up()

clear_pen()

# Pen up or down
toggle_pen(self)
```

Sprite interactions:

```
if sprite.touching(another_sprite):
    # do something

hit = sprite.touching_any(list_of_sprites)
if hit:
    # do something with hit
```