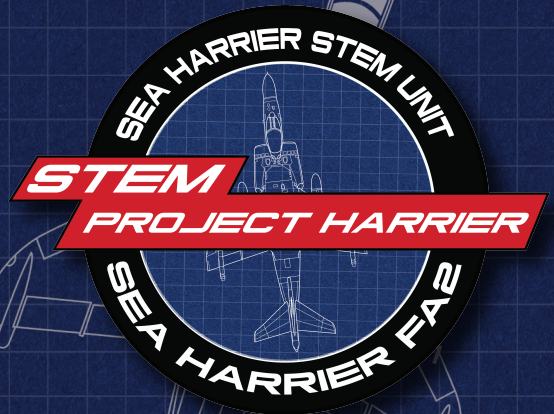


Where Aviation Heritage Inspires Future Innovators



FREE Online **STEM** Workshops Coming to Cornwall In 2026

We're bringing the excitement of real-world engineering and aircraft technology into the classroom — online and free of charge.

Learning That Goes Beyond The Classroom

Just like Royal Navy engineers who split their training between the classroom and working on real aircraft, we bring that same approach to STEM education.

Our workshops combine classroom theory with real aircraft and cutting-edge technology, turning lessons into hands-on, interactive experiences. Students don't just learn concepts — they experience true, practical STEM in action.

This is real-world, hands-on STEM learning you won't find in traditional workshops.



Restore, Preserve, Educate

From Design To Flight - Build and Code Your Own Drone

STEM workshops where students design, build, and code drones for both remote-controlled and autonomous flight.



What Do We Teach?

We teach STEM through the thrilling world of aviation, connecting science, technology, engineering, and mathematics to real aircraft using four retired, Sea Harrier jets.

Our hands-on workshops take students out of the classroom and onto the flight deck, where they explore actual aircraft systems, propulsion, flight dynamics, and cutting-edge technology.

We bring the future of aviation into the classroom, teaching students to design, build, and code drones capable of flying autonomously or remotely, and performing a variety of roles. Using our own AI engine, we explore how artificial intelligence is shaping the future of aviation from powering next-generation digital cockpit displays to delivering real-time information to pilots.

We don't just teach from books or computer screens — all our STEM workshops are fully interactive. Students build, code, and design for real.

At the end of every STEM module, they put their skills to the test in a practical, hands-on environment, turning learning into action.

Students earn Certificates and Patches, for all modules and workshops they complete



We use 3D printing to teach STEM skills, including design, engineering, manufacturing and rapid prototyping.

Students also get to build and assemble 3D models to explore real-world aviation manufacturing techniques and construction processes.

Coding Fun

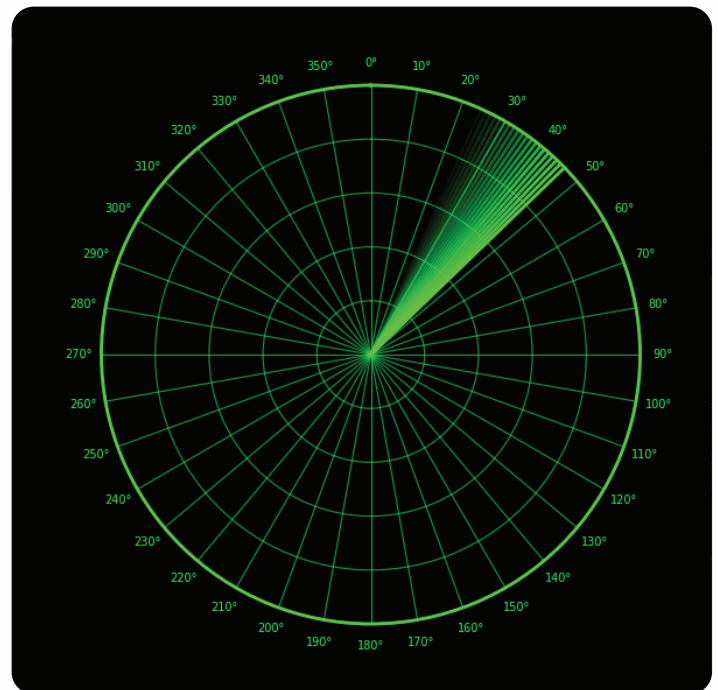
One of the STEM workshops we offer focuses on radar technology: what it is and how it works. In this hands-on workshop, students assemble a basic radar system using a radar sensor module and a Raspberry Pi computer. They then learn how to receive signals from the radar, process the data, and interpret the results. Finally, students program a custom radar display to visualize the detected objects in real-time, giving them a clear understanding of how radar systems detect and track targets.

We can't take you through the full workshop here, but we can give you a taste of the action!

On the next page, you'll see a snippet of Python code that creates a radar screen simulation just like the ones pilots use to spot objects in the sky.

This is a basic version of the code from our workshop, but it's already packed with fun. You can change the colors, make the sweep spin faster, or tweak the glowing trail to make it your very own. Even without objects yet, it's a great way to experiment, play, and see your code come alive on the screen.

Think of it like your first coding mission: copy the code, try different ideas, and explore what happens. You might even add moving objects, create new patterns, or invent a radar design completely your own! Every small change is a new discovery, and this is just the beginning of what you can do in the full workshop.



Not sure how to get started? then visit our youtube channel for a step by step tutorial.



@stemprojectharrier



PyCharm

Download for free





Code With Python

```
import numpy as np
import matplotlib.pyplot as plt
from matplotlib.animation import FuncAnimation

# Setup polar figure
fig, ax = plt.subplots(subplot_kw={'projection': 'polar'})
ax.set_facecolor('black')
ax.set_ylim(0, 10)

# --- Radar orientation ---
ax.set_theta_zero_location("N") # 0° at top (North)
ax.set_theta_direction(-1)     # clockwise

# --- Radar grid details ---
# Concentric rings
ax.set_yticks([2, 4, 6, 8, 10])
ax.yaxis.grid(True, color='lime', alpha=0.6, linestyle='-')

# Radial lines every 10 degrees
angles = np.deg2rad(np.arange(0, 360, 10))
ax.set_xticks(angles)
ax.xaxis.grid(True, color='lime', alpha=0.6, linestyle='-')

# Degree labels every 10°
ax.set_xticklabels([f'{d}°' for d in range(0, 360, 10)],
                    color="lime", fontsize=7)

# Hide radius labels for clean radar look
ax.set_yticklabels([])

# --- Radar sweep with trailing glow ---
trail_length = 20
lines = [ax.plot([], [], color='lime', lw=2, alpha=1 - i/trail_length)[0]
          for i in range(trail_length)]

def init():
    for line in lines:
        line.set_data([], [])
    return lines

def update(frame):
    sweep_angle = frame * np.pi / 90 # rotation speed

    for i, line in enumerate(lines):
        angle = sweep_angle - i * 0.02
        line.set_data([angle, angle], [0, 10])
    return lines

ani = FuncAnimation(fig, update, frames=1000, init_func=init, blit=True, interval=50)
plt.show()
```