“Putting the power of digital making into the hands of people all over the world.”
The Raspberry Pi Foundation

The Raspberry Pi Foundation are an educational charity based in the UK.

They also own the company that produces the Raspberry Pi computer.

All the profits The Foundation get from selling the computers are reinvested into educational projects.

<table>
<thead>
<tr>
<th>PiZero</th>
<th>PiZero W</th>
<th>PiZero WH</th>
<th>Pi 3</th>
<th>Pi 3 B+</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Basic board</td>
<td>-Wireless is</td>
<td>-Headers come</td>
<td>-Plenty of</td>
<td>-Faster</td>
</tr>
<tr>
<td>-Wireless isn’t included</td>
<td>included (W)</td>
<td>already soldered (H)</td>
<td>USB ports</td>
<td>processor</td>
</tr>
<tr>
<td>-Requires soldering</td>
<td>$10</td>
<td>$14</td>
<td>-Wireless</td>
<td>-Improved wireless</td>
</tr>
<tr>
<td>$10</td>
<td>$10</td>
<td>$14</td>
<td>$35</td>
<td>$38</td>
</tr>
</tbody>
</table>
What do you need?

- Raspberry Pi
- Monitor with HDMI to VGA or DVI adapter
- SD Card for the operating system (You’ll need at least 8GB)
- Keyboard & Mouse
- Power Supply
  - An old monitor is fine.
  - Reuse an old set.
  - If you’re using a Pi Zero, you’ll need an HDMI adapter (mini)
Why Pi?

1 GPIO Pins:
   What does that mean?
   GPIO pins mean you can bring coding into the physical world. Light a light. Trigger a motor. Take a picture.
   Connect & control devices.
   Solve problems.
   A Pi 3 has GPIO pins for power, ground, and 26 for general use.

2 Code at many levels with many languages:
   - Scratch
   - Python
   - C++

3 Open architecture:
   Because it’s open, you’ll keep seeing new ideas, tools, products, and add-ons for Pi.

4 Cost
Resources

Learn:
- Foundation
- Project Ideas
- Amanda Haughs (Picademy teacher’s blog)
- Adafruit
- Sparkfun
- Trinket.io (SenseHat emulator & Python)

Purchase:
- Foundation
- Adafruit
- Sparkfun
- Pimoroni
- CanaKit
- PiTop (Purchase from Sparkfun)
Expand Pi with HATs & Sensors & Add-ons

SenseHAT
The SenseHAT is part of the Astro Pi project. It’s loaded with sensors for humidity, temperature, orientation, gyroscope, pressure, and more. Can’t buy one? Use the Trinket emulator.

JoyBonnet
For the PiZero, this HAT turns the Pi into an all-in-one game system and controller.

Cameras
Cameras can help you create a Pi that is a time-lapse camera, motion detector, wildlife cam, security cam, or low-cost camera.

ExplorerHAT
This HAT is a prototyping tool you can use for motors, touch interface, and more.

Sensors
Sensors for light, heat, distance, motion, fire, water, and more can be added to Raspberry Pi. For example, if motion is detected, take a picture.

Kits
You’ll find plenty of kits with the basics gathered up for you. Here are a few we’ve used: Adafruit Pi3 & PiZero Canakit or Sparkfun
### How we’ve used Raspberry Pi

<table>
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<tr>
<th>Activity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Signage</td>
<td>GUI for showcasing student game projects</td>
</tr>
<tr>
<td>Time-lapse Construction Camera</td>
<td>SonicPi music creation</td>
</tr>
<tr>
<td>Students extend Python skills</td>
<td>FishCam in our Aquaponics Lab</td>
</tr>
<tr>
<td>3D Printer Management</td>
<td>Photo Booths for Open House, Staff Camp, Conferences</td>
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</tbody>
</table>

- Students extend Python skills
- 3D Printer Management
- Photo Booths for Open House, Staff Camp, Conferences
thanks!

Questions?

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