choosing a programming language in high school
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... that is right for you.

Bruce Fuda & Rob Poulter
outcomes

• Pathway?
  • Web development
  • Application development
  • Embedded systems / Microcontrollers
  • Game development

• Extra-curricular
  • Participation in external activities
    • Grok Challenges
    • Lego League
    • Robocup
    • AMT Informatics Olympiad
    • ...etc

• Flexibility (OS support, web editors, library ecosystem)
• Support for future concepts (e.g. OOP)
constraints

- Hardware constraints
  - Chromebooks
  - Tablets
  - Install space
  - Platform independence
  - Network connectivity
constraints

• Operational constraints
  • Network access
  • Library access
  • Administrative issues
  • Licensing
know your students

• We often don't control who we get as students
• Year 7s often come from variety of feeder schools
• Can we understand the pipeline even if we can’t control it?
curriculum (ACARA)

- 7 – 8
  - general purpose language
  - functions
- 9 – 10
  - modular design
  - data structures
  - OOP
- What other content can be taught e.g. data management
- May be variation in different jurisdictions from 7 - 10
- Are we designing with syllabus content for 11 - 12 in mind?
experience & support

• What support networks exist for teachers (current and future)?
• What resources are available for PD?
• Can you draw on experience from other schools?
  • e.g. moderating schools
• Who are resources written for?
  • Teachers
  • Learners
  • Developers
cognitive load

- Quality of feedback and errors
- Syntax
- Supporting environment
  - library ecosystem complexity
  - Headers
  - design vs programming language
- Extras
  - How much needs to be taught as supporting concepts
    - UI (e.g. HTML/CSS/JS, SwiftUI)
    - IDEs & Tools (e.g. Xcode)
editors & IDEs

- Online vs Installed
- Beginner friendliness
- Quality and ease of use of debugging tools
- Extensibility
- Source control
- Environmental completeness (language runtime, libraries, ...)
recommendations

• Choose a language that provides continuity
• Consider the opportunities which a language provides your students
  • internally & externally
• Longer term goals
  • 7 – 12
  • Support student projects
  • University
  • VET
  • Industry
• If the questions haven't helped...

• No language is perfect, but Python use is widespread, well supported both online and offline and has a broad range of suitable programming contexts.
Contact us

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