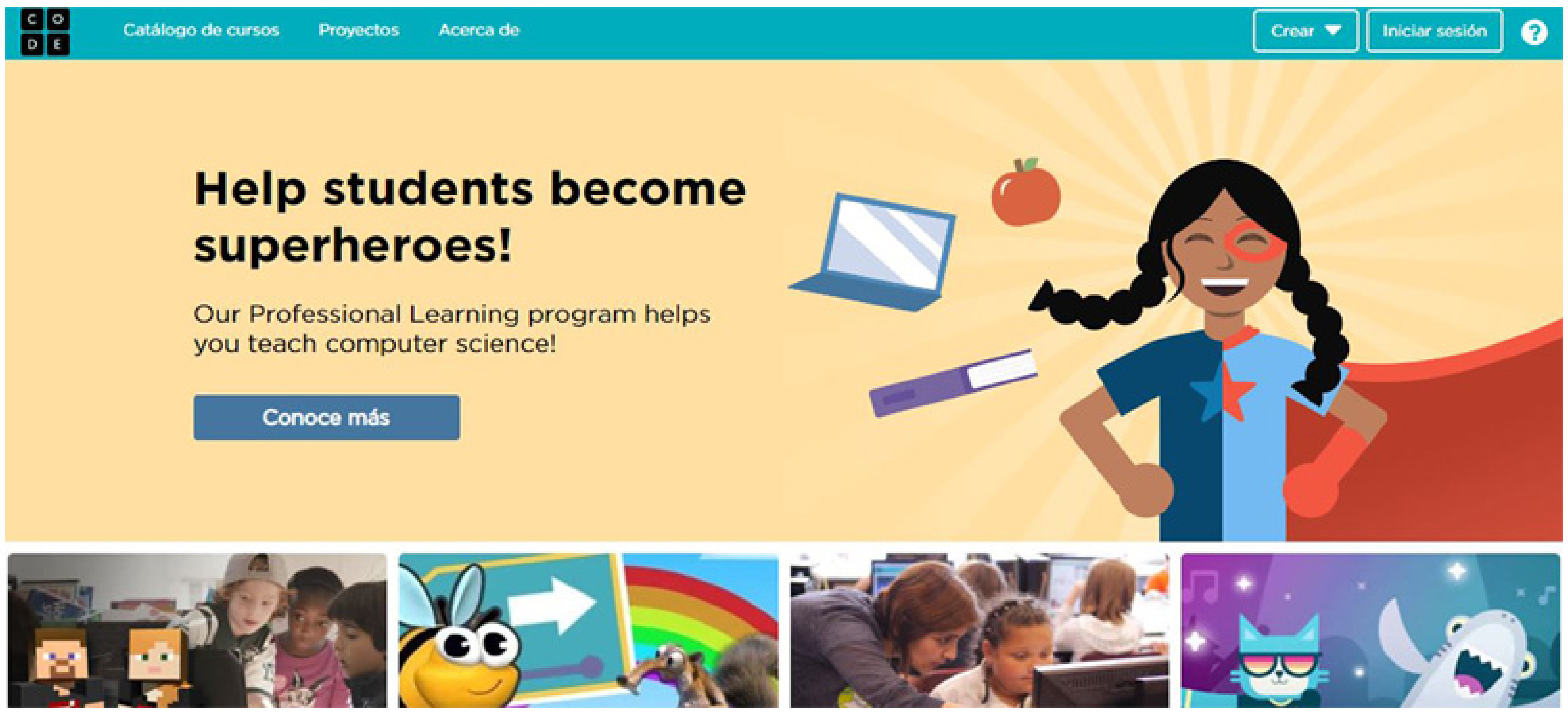
mSchools



Help students become superheroes!

Our Professional Learning program helps you teach computer science!

Level of computational thinking

Beginner

Code.org expands access to computer science in schools by offering guided and oriented courses designed for introducing computational thinking.

Code.org is a nonprofit supported by various companies such as Amazon, Meta, Google, and Microsoft.

Minimum requirements

- Internet access.
- It can be used in computers or tablets (requires a browser).

Benefits

- It offers organized courses with extra information to help teachers work with classroom projects.
- Each course has different modules. Each module has its own narrative and context.

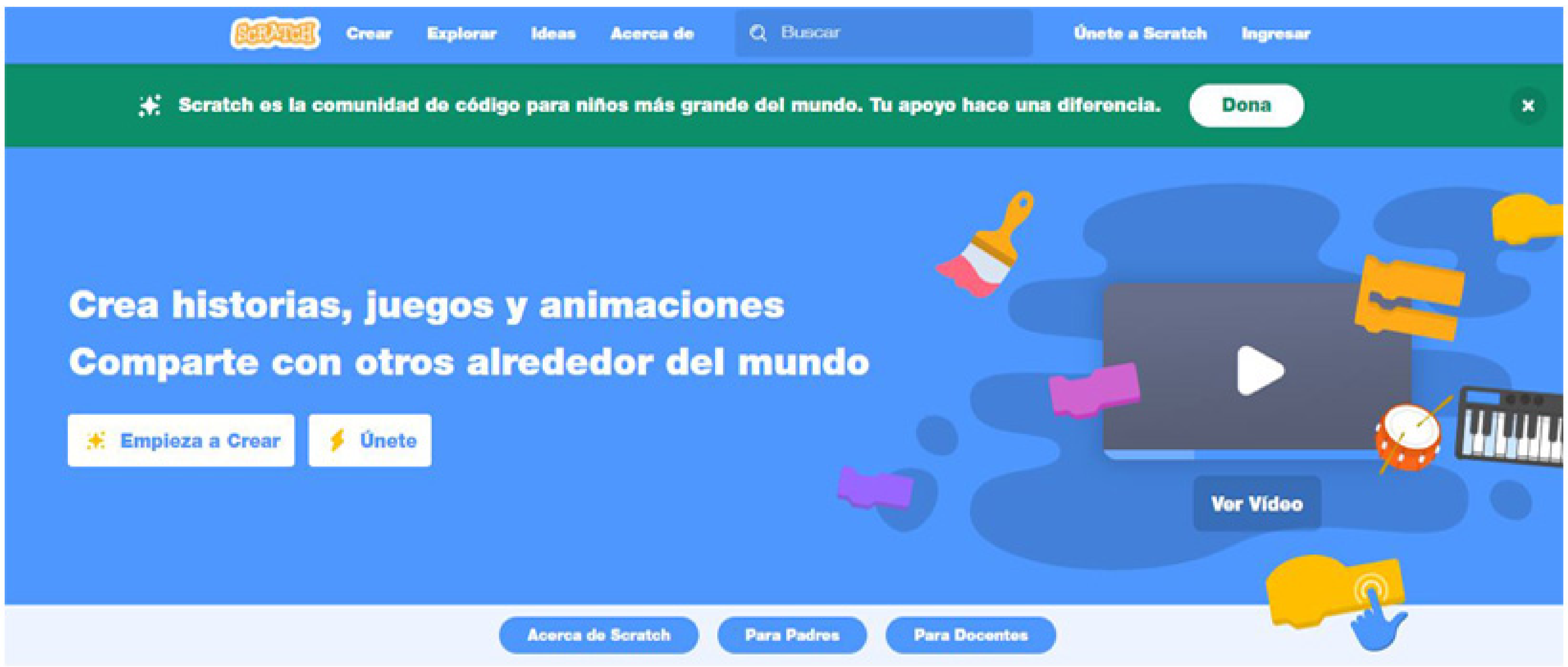
- It allows to create a group of teachers and students to work on a specific project so that each teacher can follow their students' progress.
- It has projects with movie characters (such as Frozen) or video games (such as Minecraft) in order to introduce topics related to the students' authentic interests and age.
- It has many help options in case of errors.

Observations

- It is a closed proposal, which means that the available programming options will be according to the chosen project.
- SThough most of the contents are available in Spanish, some are only available in English.

Advice to teachers

- Code.org is ideal for teachers who are beginning to work with computational thinking in the classroom.



Scratch es la comunidad de código para niños más grande del mundo. Tu apoyo hace una diferencia.

Crea historias, juegos y animaciones
Comparte con otros alrededor del mundo

Level of computational thinking

Beginner - Intermediate

Scratch is the largest programming community for kids in the world. It's a programming language with a simple interface that can create digital stories, games, and animations.

Scratch is developed by Scratch Foundation, a nonprofit organization supported by Lego Foundation, Massachusetts Institute of Technology, Google, and many other companies.

Minimum requirements

- It can be used in tablets (Scratch Junior) or computers (Scratch desktop).

Benefits

- It offers a great number of open and accessible proposals.
- It has material available in more than 70 languages.

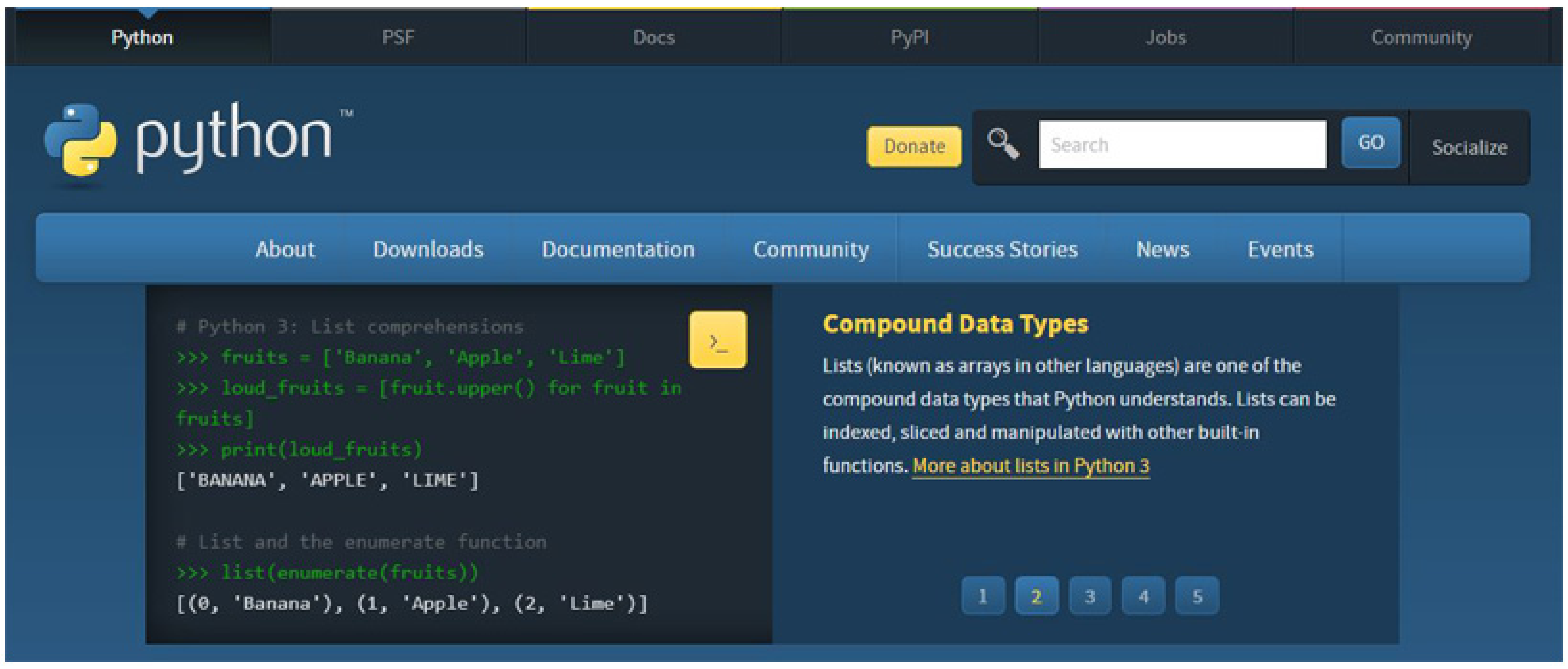
- The programming concepts are integrated in a very user-friendly visual interface, which allows you to see your work on the platform.
- Every project allows for different programming variables with no limits.
- Its community is friendly, active and open to share projects, approaches, errors, and solutions.

Observations

- It doesn't offer a teaching approach integrated to the given examples.

Advice to teachers

- Scratch is key for gamifying strategies, for this reason it can be used in various classroom projects of different levels.



```
# Python 3: List comprehensions
>>> fruits = ['Banana', 'Apple', 'Lime']
>>> loud_fruits = [fruit.upper() for fruit in
fruits]
>>> print(loud_fruits)
['BANANA', 'APPLE', 'LIME']

# List and the enumerate function
>>> list(enumerate(fruits))
[(0, 'Banana'), (1, 'Apple'), (2, 'Lime')]
```

Compound Data Types

Lists (known as arrays in other languages) are one of the compound data types that Python understands. Lists can be indexed, sliced and manipulated with other built-in functions. More about lists in Python 3

Level of computational thinking

Intermediate - Advanced

Python is a widely used programming language because it is efficient and easy to learn, and it can also be run on many different platforms.

Python software can be freely downloaded and it integrates well to all kinds of operating systems.

Python Software Foundation is behind this programming language and is supported by different companies such as Meta and Bloomberg.

Minimum requirements

- It requires basic skills of abstract computational thinking.
- It needs a computer.

Benefits

- Python has different application environments (web, robotics, Internet of things, among others)
- It is a professional-level platform.
- Its community is friendly, active and open to share projects, approaches, errors, and solutions.

Observations

- It’s in English but it is quite descriptive, so it's accessible even to those who don't manage the language so well.
- It has a friendly language that makes you understand the possible errors.
- It has no associated graphical interface.

Advice to teachers

- Python can be written in notepad and is saved as a .py file that will be later run in the necessary software depending on the project.

  To associate this language to robotics projects, boards are needed. There are many generic boards that can work with Python, which makes it a very accessible language for this type of projects.

  Also, Python can be used in different simulators like Tinkercad.