Many kinds of scientific problems

The scientific questions that arise in biology, mecanics, etc... are all different from each other.
Moreover, some work are more experimental-based and others have a strong numerical dimension:

- equations solving
- search for functions optimum
- statistical analysis
- real time data acquisition
- etc...

Some dedicated libraries

Python is suitable for scientific computing:

1. Everything you interact with in Python an object with methods and attributes
2. To solve a problem:
    A. one define some objects that represent some mathematical or physical properties.
    B. these objects interacts with each other using a well documented API

The definition of suitable objects can be difficult (step 2.A). Thus, hundreds of open source dedicated packages did it for you. `numpy`, `pandas` and `matplotlib` are particular examples of these since many libraries are built on top of them.

For instance, a `numpy` array is of type **`np.ndarray`**: it can store some temperature values which average can be calculated using `.mean()`.

Some very common problems

Some packages are very famous in scientific computing. Let's focus on:

- `scipy` : typically used in optimization problems
- `scikit-learn` : typically used in machine learning problems
- `sympy` : designed for natural mathematical processing