# Scratch

Maloney et al. (2004)

Scratch is tool for kids to make "**personally meaningful**" programs like "**animated stories and games**". It supports "**self-directed learning** through **tinkering** and **collaboration with peers**." (Maloney et al. 2004). At http://scratch.mit.edu, users can **browse, play, comment on, see inside**, and **remix** projects.

Tile based programming   **Game-like domain**: sprites on a stage.
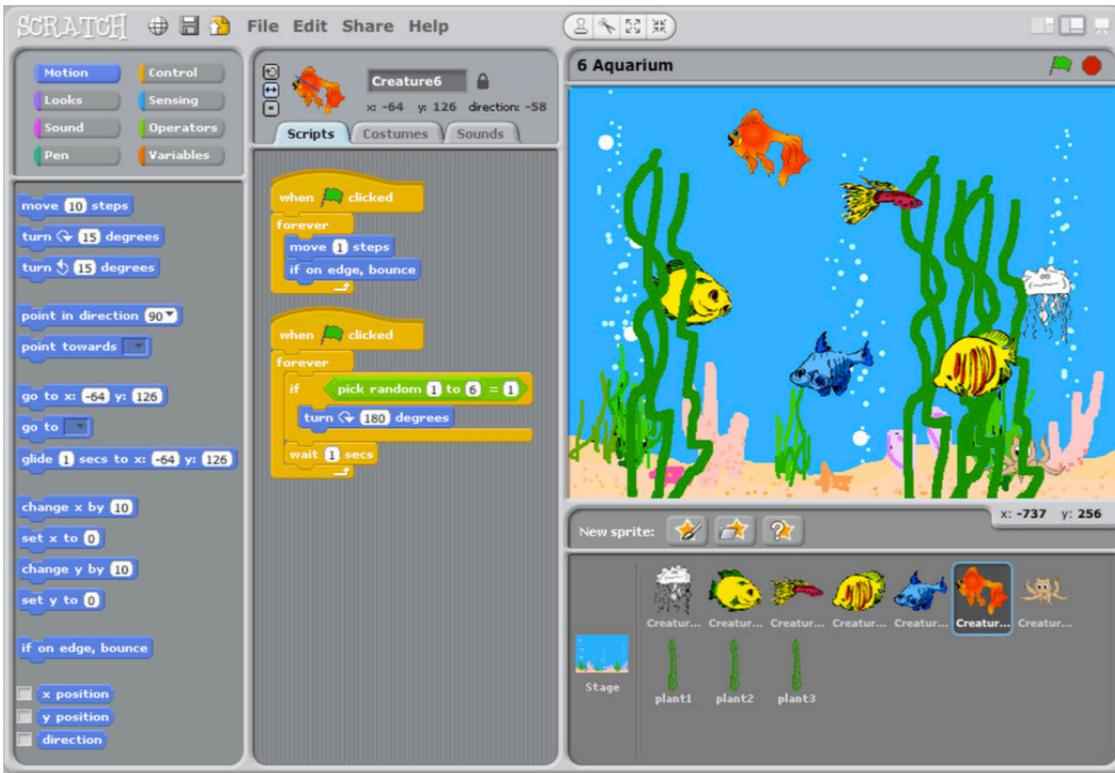
Overviews: single window; short, browsable command set; color coded command tiles.

Liveness means code is always running. **Tinkerability** means even code fragments can be run and experimented with—e.g. click any fragment to run it. There are **no error messages**; tile shapes constrains combinations.

 Running block outlined in white.

 expression result shown on hover

 Error shown in red.

 running command highlighted in yellow (both when single stepping and running)

 Data is concrete —put it on the stage to see it; data changes are animated.

Images from Maloney et al. 2010