



Coding Pirates

Teaching kids programming, IT-creativity and
modern tech

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Overview

- What is Coding Pirates?

 - Who are Coding Pirates?

 - The Coding Pirates philosophy

- Coding Pirates in practice

 - Scratch

 - Showcase of projects

 - Difficulties ahead

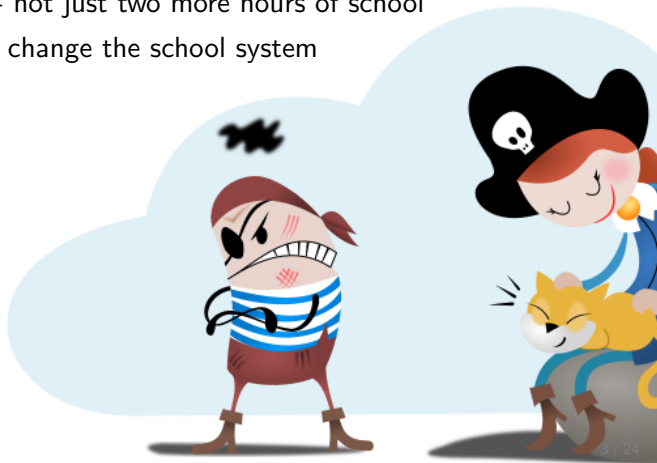
 - The Coding Pirates Community

- Computing in schools

- DIKU's involvement

What is Coding Pirates?

- ▶ Activity for kids aged 7-17 years
- ▶ A playground - not just two more hours of school
- ▶ An attempt to change the school system



Who are Coding Pirates?

- ▶ Non-profit organisation
- ▶ +250 volunteers in Coding Pirates network
- ▶ ~700 paying members
- ▶ 24 hubs in Denmark
- ▶ additional 6 hubs from January 2016



Partners

- ▶ Center for Teaching Development and Digital Media, Aarhus University
- ▶ Department of Computer Science, University of Copenhagen
- ▶ The libraries
- ▶ Microsoft
- ▶ Computerworld
- ▶ The Danish IT Industri Association
 - ▶ Canon
 - ▶ CapGemini
 - ▶ NNIT
 - ▶ ...

The Coding Pirates philosophy

"The problems now faced by mankind are largely due to man's own creativeness. Creativeness will need to account for much more if present problems are to be transcended with solutions".

*- Preface of "Explorations in Creativity", Editors:
Ross L. Mooney, Taher A. Razik*

Manifesto: <http://codingpirates.dk/manifesto/>

Example project: Horror teddy bear

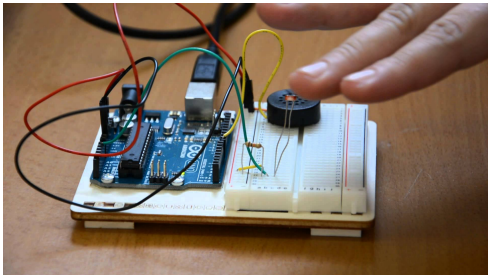
by Penelope, 12 years



<https://www.youtube.com/watch?v=Mc21BbiUGxU>

In practice

- ▶ 25-30 kids
- ▶ 7-10 volunteers
- ▶ 2 hours a week, usually 17:00-19:00
- ▶ 15 minutes break with snacks, cool aid, fruit etc.
- ▶ Bring your own device (BYOD)



Workshops

- ▶ 4-6 week workshops
 - ▶ Scratch
 - ▶ Processing(.js)
 - ▶ Arduino
 - ▶ Unity
 - ▶ Python
 - ▶ 3D modelling in Blender
- ▶ Kids can not switch between workshops during these 4-6 weeks
- ▶ Presentations at the end of a 4-6 week period

Scratch

Scratch 4 Arduino

Stickman dungeon

by Alexander and Oscar, 11 years



<https://scratch.mit.edu/projects/57201286/>

Robot-sumo




<https://www.youtube.com/watch?v=qcWTpXh-r0w>

3D printed autonomous Arduino boat


by Niels, 12 years


← → ↻ <https://www.facebook.com/pastaofficial> ☆

PASTA - Tiny Autonomous Boat 🔍

 **PASTA - Tiny Autonomous Boat**
Community 👍 Liked ▾ 💬 Mess

Timeline About Photos Likes Videos

 41 people like this
Niels N. Horn and 3 other friends

 Invite friends to like this Page


ABOUT >

🔍 Pirately Autonomous Ship Travels Anywhere (PASTA).

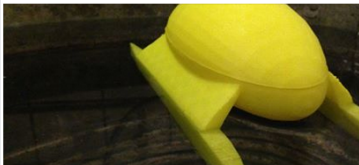
Follow the creation of PASTA, from being just af HIPS (plastic) boat, to being an autonomous boat!

[?](#) Ask for PASTA - Tiny Autonomous Boat's website

PHOTOS >

 **PASTA - Tiny Autonomous Boat** added 3 new photos.
8 November 2014 · Edited · 🌐

Just floating around.



iOS app: "Draw the wall"

by William, 14 years

Draw the Wall

By joachim kattrup

Open iTunes to buy and download apps.

[View More by This Developer](#)



[View in iTunes](#)

This app is designed for both iPhone and iPad

Free

Category: Games
Released: Aug 07, 2015
Version: 1.0
Size: 35.2 MB
Language: English
Seller: joachim kattrup
© 2015 William Kattrup
[Rated 4+](#)

Compatibility: Requires iOS 7.0 or later. Compatible with iPhone, iPad, and iPod touch. This app is optimized for iPhone 5, iPhone 6, and iPhone 6 Plus.

Customer Ratings

We have not received enough ratings to display an average for the current version of this application.

More by joachim kattrup



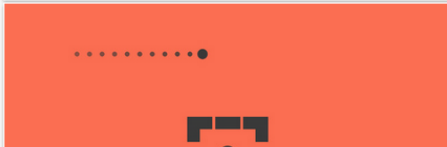
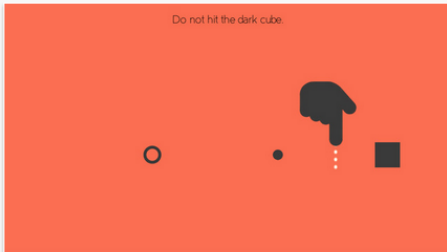
Description

Draw the Wall is a simple minimalist game. Fun to play, hard to win. Draw the walls and make the ball go to the hollow circle.

[Draw the Wall Support](#)

Screenshots

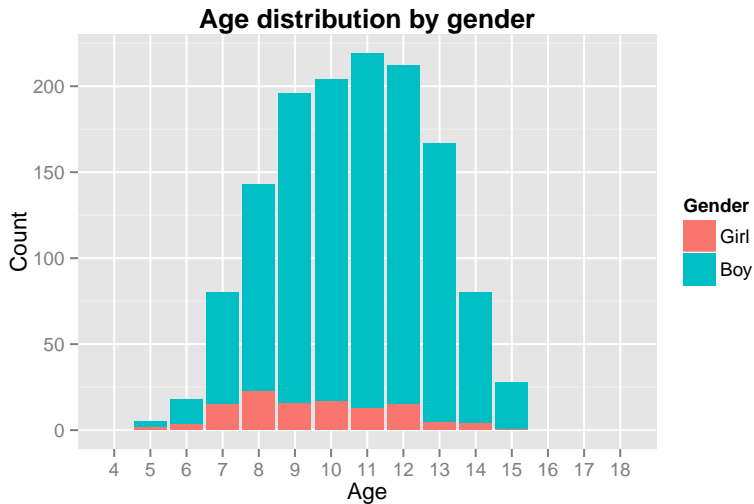
[iPhone](#) | [iPad](#)



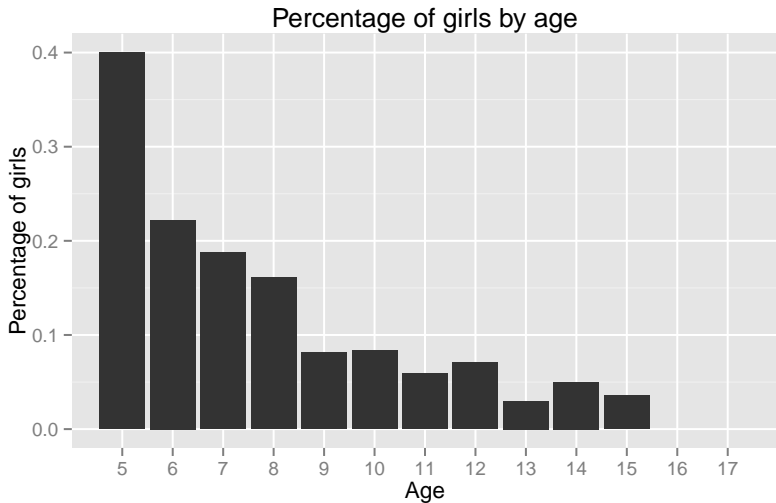
Difficulties identified

- ▶ Few from age 14 and up
- ▶ Few girls
- ▶ Fostering friendships is hard, but important
- ▶ Further education of volunteers

Age and gender (including waiting list)



Percentage of girls by age (including waiting list)



Volunteer community



Computing in schools

"The computer is the Proteus of machines. Its essence is its universality, its power to simulate. Because it can take on a thousand forms and can serve a thousand functions, it can appeal to a thousand tastes."

- Seymour Papert, in Mindstorms

We can already use this when teaching e.g. history, biology, chemistry, or language classes!

- ▶ Make a game that teaches grade $N - 1$ about photosynthesis
- ▶ Make a game that teaches grade $N - 1$ about life in ancient Rome
- ▶ Make an interactive story that tells the story XYZ

More fun than a poster or a written report!

But what do we want schools to teach?

- ▶ Teach computing as a discipline, e.g. like math
 - ▶ Algorithms vs. data
 - ▶ Systematic problem solving
 - ▶ Computational thinking
- ▶ Teach computing as a craft/skill, e.g. like woodwork
 - ▶ Focus on creation and tools
 - ▶ Creative and reflective thinking
- ▶ A mix?
- ▶ As a separate discipline or inside other classes?

Why does a university use time teaching tweens and teens?

- ▶ Supply chain management
- ▶ The teachers needs our expertise
- ▶ Defining how computing should be taught in Schools
- ▶ Potential research areas
- ▶ Teacher education and re-education
- ▶ Because we have connections to potential volunteers (e.g. alumni)
- ▶ Good publicity and great advertisement

Links

- ▶ Coding Pirates website: <http://codingpirates.dk>
- ▶ Manifesto: <http://codingpirates.dk/manifesto/>

Coding Pirates in Gothenburg?

