



How to attract children to computer science ?

Piotr Bała
WMiI UMK Toruń



Computer Science at school in Poland



- Grades 1-3: Computer classes in curriculum (1 lesson a week through 3 years)
- Grades 4-6: Computer classes – mostly ICT
- Gimnasium: only 2 hours a week in one year
- Secondary school: ICT for all students, computer classes for selected students interested in physics and mathematics



Results

- Less students interested in computer science
- Less students who can do programming
- Less students taking final exams in computer science
- Attempts to remove computer science from final exams



What we do to overcome problems



- Olympiads in informatics
- Computer classes for students
 - Regional programming course at N. Copernicus University
- Children University



Children University



- Started in school year 2010/2011
- Organized by N. Copernicus University Foundation
- Meetings every 2nd weekend
- Fee 75EUR per semester
- Classes of 30 students
 - Computer classes - 5 students
 - 2 instructors for class
- Spotkania co 2 tygodnie

Why SCRATCH?

- Easy to use
- Good programming paradigm
- Full localization
- Sharing of the results through SCRATCH web site





Curriculum – Lesson 1



- Introduction to SCRATCH
 - Movement along line
 - Change the ghost view
 - Background
 - Colour, drawing lines
 - If object touches....
 - If then....



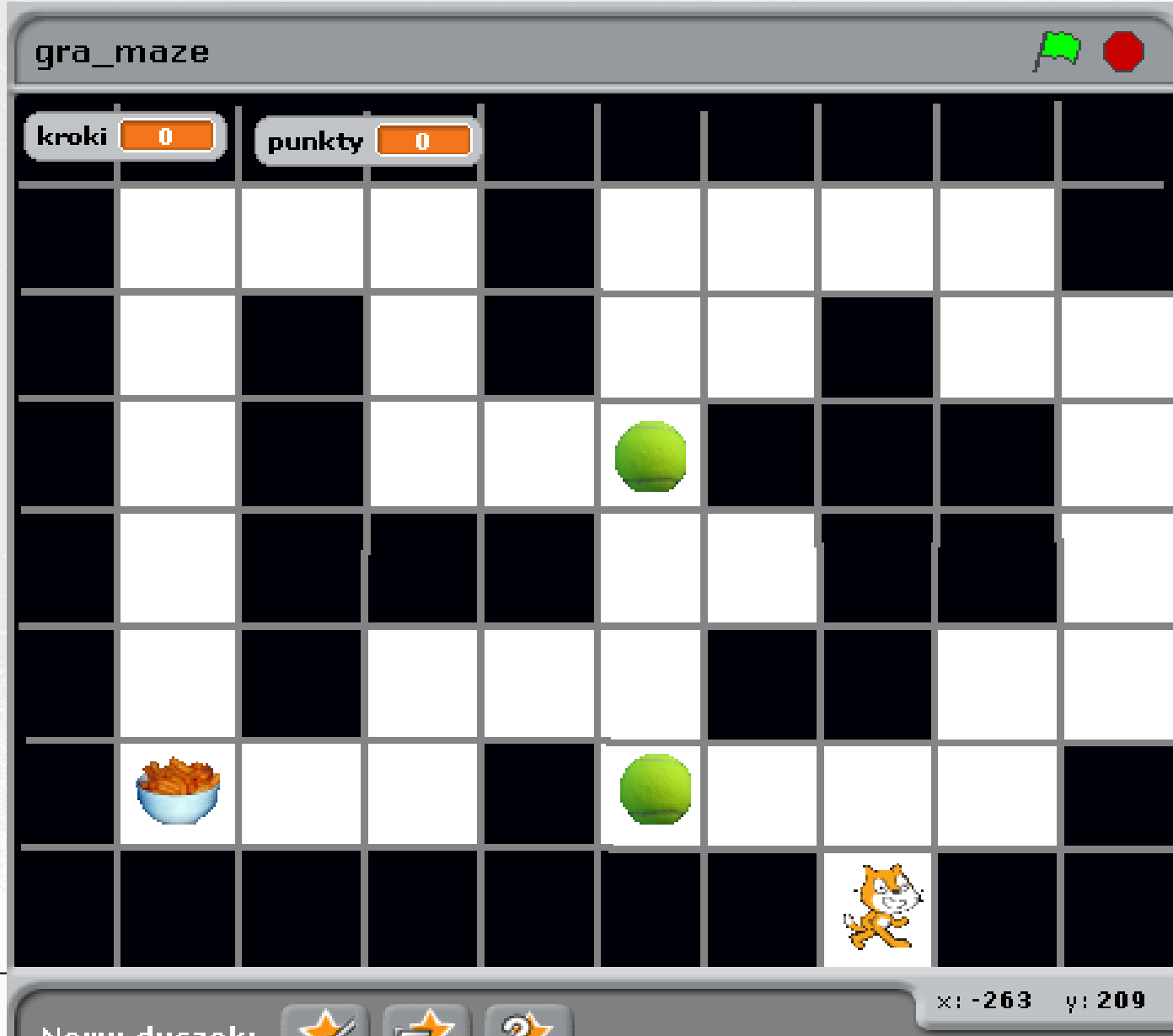
Curriculum – Lesson 2



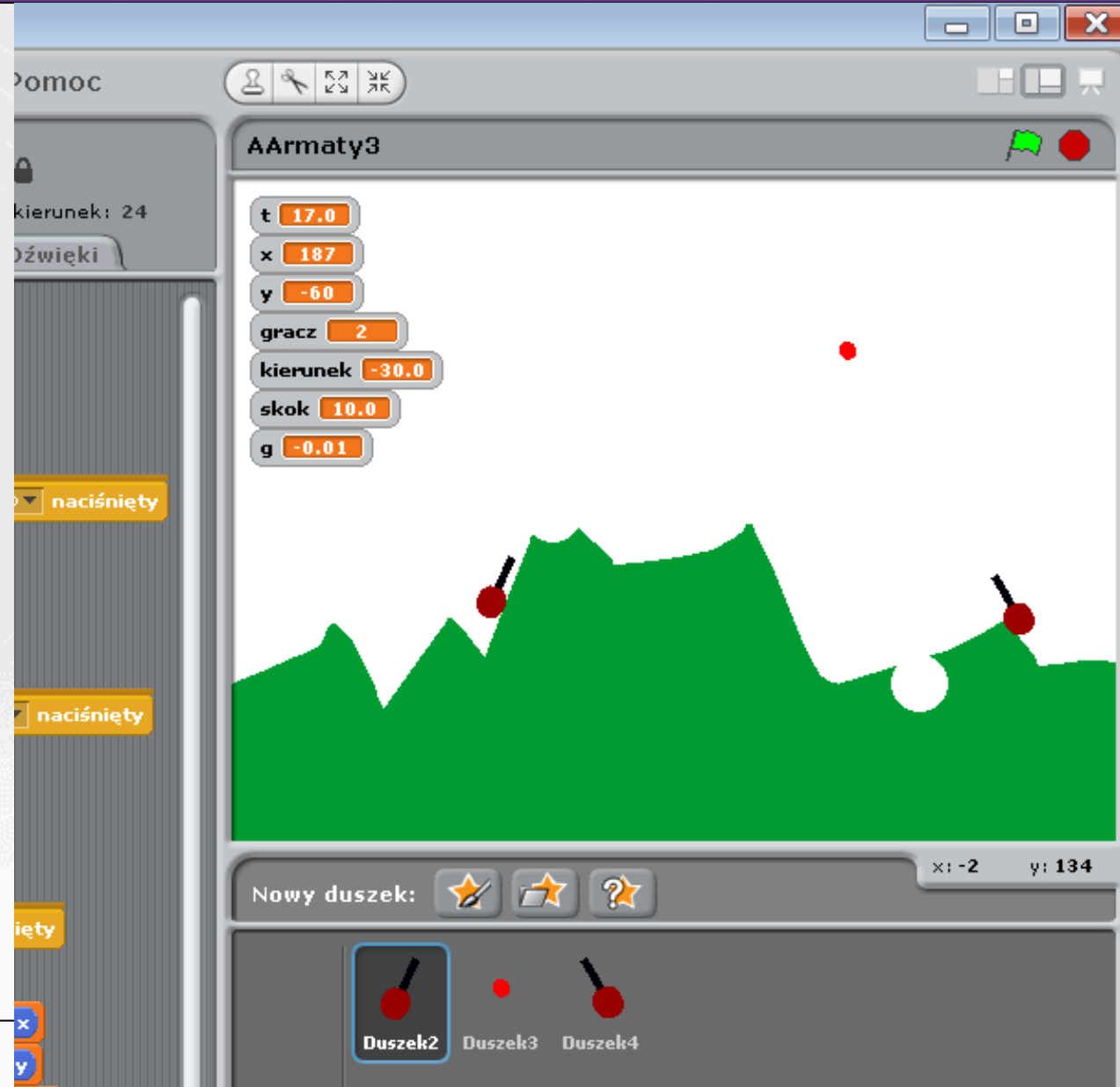
- More advanced features:
 - Moving along circle or square
 - How to draw different figures
 - Move objects with keyboard
 - Move object toward mouse
 - Actions when object meets another object
 - Input data from keyboard
 - Variables

MAZE

- Variables
- Game logics
- How to finish game



- Game
 - 2 users
 - Gravity!





Results



- 200+ children trained
- Attractive classes
- High marks given by children
- Results of each class submitted to SCRATCH web site
 - user **umk**
 - over 500 projects each year



Results



- Teachers trained to teach SCRATCH
- Curriculum for grades 1-3
- Curriculum for grades 4-6



**How to attract children to
computational thinking?**

Use SCRATCH!

Lucyna Bała SP8, Toruń

Marek Nowicki, Michał Gawarkiewicz

Piotr Bała

WMiI UMK Toruń