Resources: Robotics in the classroom

http://stager.org/logo.html   Learning with Logo
- Logo and "Logo-like" Programming Environments for Learners

http://www.damienkee.com/   "independent technology education expert"
- use of Lego Mindstorms NXT
- lesson plans
- teacher resources
- blogs
- building instruction

http://tjleone.com/design_problem.htm Resource for math, geometry & LOGO by a Montessori teacher

http://www.robo-works.net/roboeducators.html   Robo Educators
- curriculum
- latest news
- design, programming, science connections
- non-Lego option

http://www.nxtprograms.com/projects.html   Commercial site
- building instructions
- where to purchase
- where to get missing pieces

http://www.ortop.org/NXT_Tutorial/index.html   NXT Tutorials - basic

http://spark.irobot.com/   SPARK –Starter Programs for the Advancement of Robotics Knowledge
- Educational resources from iRobot
- resources for teachers – at all levels
- platform options
- what's new in robotics education

http://www.thetech.org/robotics/activities/index.html   The Tech Museum (San Jose, CA)
- background information
- activities
- resources

http://thenxtstep.blogspot.com/   The NXT Step - LEGO Mindstorms NXT Blog
http://www.robotshop.com/gorobotics/   Robotics blog (somewhat complex)
- How to make a robot
- Projects
- Explanations & definitions

http://el.media.mit.edu/logo-foundation/about/index.html The LOGO Foundation
- facilitates communication among members of the Logo community

- provides information about Logo resources, products, and services
- online publications
- what's new

http://library.thinkquest.org/C004967/   Thinkquest by students for students

http://robotics.nasa.gov/   NASA's Robotics Alliance Project
- robotics competition information
- scholarship information
- NASA 's robotics program

http://stemrobotics.cs.pdx.edu/   STEM Robotics from Portland State University
- repository for educational materials – using robotics for technology and engineering education, including computer science
- complete curricula (with lessons, assessments, instructor guides, etc.) and individual resources (e.g., videos, lectures

http://www.education.rec.ri.cmu.edu/index.htm
http://www.education.rec.ri.cmu.edu/robots/nxteacher/index.htm
- curriculum & professional development

http://www.legoengineering.com/
- Center for Engineering Educational Outreach, Tufts University
- The LEGO Group
- Full of great lesson plans & activities

http://www.hightechkids.org/
- resources for a FLL team

http://artbotics.cs.uml.edu/index.php?n=HowTo.BuildAKit   Artbotics
- program description
- assembly instructions
- programming guide

Shopping:
http://robomatter.com/

http://robomatter.com/Shop-By-Robot/NXT-Robots/Curriculum/NXT-Video-Trainer-2.0-Classroom-License Carnage Mellon NXT Video Trainer

Books:
The LEGO Mindstorms NXT Idea Book
The Unofficial LEGO Mindstorms NXT Inventor's Guide
Classroom Activities for the Busy Teacher: NXT by Damien Kee
Making Music with the NXT by Damien Kee
Robot Magazine: http://www.botmag.com/articles/01-18-06_Teaching_With_Robots.shtml

Presentation Outline

Introduction
- Why robotics
- STEM education & Montessori
- Deepening student understanding
- Indirect & direct aims

Lower Elementary
- Presentation sequence
- Connection to Montessori materials & activities
- Off computer activities
- Platform sequence; MSW LOGO to RCX (Lego)
- Student samples
- Potential

Upper Elementary
- Presentation sequence
- Connection to Montessori materials & activities
- Off computer activities
- Thinking about programming activity
- Platform sequence; MSW LOGO to Cricket to NXT
- Student samples
- Potential

Further exploration
- FLL – FIRST Lego League
- Artbotics
    - Samples
    - Successes
    - Challenges

Sample lesson
>   Gear ratio

Conclusion
- Going out ideas
- Integration
- Crickets in the closet
- Resources

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