KEYNOTE SPEAKER

Auditorium, 2 pm

Dr. Edmund Bertschinger,
MIT Professor of Physics
"Rocking Spacetime:
The Discovery of Gravitational Waves from Colliding Black Holes"

An astrophysicist and cosmologist, Dr. Bertschinger explores cosmology, gravitation, and dark matter. He leads a research program studying galaxy formation, the physics of gravitation, and black holes. His program also studies the physics of dark matter in the early universe and the effects of the big bang on the formation of cosmic structure.

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Thank you to our friends and families:
Dana Hall School; DeSutter/Paglia Family; DobosDesign; Fund for Wellesley; iRobot; Kaplan Chow Family; MIT Launch; Roche Brothers; Erica and Marc Recht; Susan and Matt Ryan; Wellesley Municipal Light Plant

ABOUT WEF

Wellesley Education Foundation (WEF) is a 501 (c) (3) non-profit organization dedicated to *advancing innovation and excellence in the Wellesley Public Schools*. Through the funding of programs and grants for over thirty years, WEF has championed THE LOVE OF LEARNING in our district from the first day of preschool, through high school graduation, and beyond. WEF works to unite the entire community in enthusiastic support of our schools. **Over $2.2 million has been awarded in grants and assistance to WPS education initiatives in the past 10 years.**

If you enjoyed your visit, please consider making a donation to WEF. Together we can empower the young to become future leaders, innovators, and thinkers.

WORKSHOPS

Space limited; Sign up for workshops at table outside each room

10:30 AM

ROOM 108
Creating Culinary Masterpieces through Food Science – Little Chefs
We will perform cooking demonstrations on how to use science and math to create culinary masterpieces. (grades K-8, 45 minutes)

ROOM 238
Explore the World of Coding – jrCode
Join jrCode's Coding Coaches as they run through a variety of coding challenges. (K-5, 30 minutes)

ROOM 239
Code Your Own Game! – Coding for Kids
Do you play games and wonder how they are created? Using core coding concepts, such as loops, conditionals or variables, we will have fun making characters fly, chase each other, leave colorful trails in the sky, and more! Your friends and family will love it when you play your game with them after the workshop. Imagine, create, play! (grades K-5, 45 minutes)

ROOM 240
Learn to Code through Game Design – Microsoft, Natick
Explore coding for middle-school aged students through fun hands-on game design activities. From Kodu to Flatverse, TouchDevelop to Hour of Code, explore ways in which the Microsoft Store is engaging students in STEM. (grades 6-8, 60 minutes)

ROOM 241
WEF Planetarium Show
See the Stars! Experience the night sky in its full glory without light pollution in a Starlab portable planetarium. Learn hot to find the North Star, ask questions, see the Milky Way, and see the southern constellations. (grades 3-up, 30 minutes)

ROOM 247
The Nature of You: Capture Your DNA in a Necklace – The Science Club for Girls
Come join us to learn about the molecular basis of life and the molecule that encodes what makes you YOU: DNA! We will isolate DNA from participants' cheek cells and capture it in a helical tube to make a necklace that you can take home. (grades 3-12, 60 minutes, Elementary aged participants may fare better with the direct assistance of an adult.)

11:00 AM

OUTSIDE COURTYARD
Wellesley Middle School Science Olympiad Rocket Launch
In courtyard, weather permitting, no sign-up required.

11:30 AM

ROOM 243
Backyard Alchemy: The Merits of Composting – BootStrap Composting
This workshop aims to cover the larger societal and environmental merits of diverting organics from the traditional waste stream, while touching on the basics for maintaining a backyard composting operation. We will discuss the proper way to compost, what can be composted, and how to get started. You'll leave understanding the difference between soil and compost and how the latter benefits root structures and plants. (grades 6-12, 45 minutes)

ROOM 108
Creating Culinary Masterpieces through Food Science – Little Chefs *

ROOM 238
Explore the World of Coding – jrCode *

ROOM 239
Code Your Own Game! – Coding for Kids *

ROOM 240
Learn to Code through Game Design – Microsoft, Natick *

ROOM 241
WEF Planetarium Show *

ROOM 247
The Nature of You: Capture Your DNA in a Necklace – The Science Club for Girls *

1:00 PM

ROOM 242
Design and Launch your DNA Experiment in Space – Genes in Space
Genes in Space is a national science competition where students in grades 7-12 design authentic DNA research proposals. Winners have their experiments launched to the International Space Station! In this workshop you will discover how you can pioneer critical DNA research in space to advance our capabilities for human space travel and deep space exploration. You will learn the basics of the polymerase chain reaction (PCR), the technique essential to all Genes in Space proposals, and have a chance to brainstorm Genes in Space ideas. Genes in Space submissions are due on April, 21st 2017. For more information, visit www.genesinspace.org. (grades 7-12, 60 minutes)

ROOM 238
Explore the World of Coding – jrCode *

ROOM 239
Code Your Own Game! – Coding for Kids *

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OUTSIDE COURTYARD
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** See previous listing for details.*

SUSTAINABILITY CHALLENGE

Students in Wellesley were tasked with conveying how renewable energy (solar, wind, hydro, etc.) might impact their life and the environment in the future. We were impressed with the energy, creativity, knowledge and forward thinking it took to create all of those essays, projects, videos, poems, artwork, songs and more. Stop by the Sustainabilty Challenge exhibit to see amazing projects. **Award Finalists will be presented at 1:45 PM in the Auditorium and a reception for participants will occur at 3 PM in Room 164.**

CREATEATHON

The first Wellesley CreateAthon was an exciting day of project-based learning held on March 25, 2017. A group of 67 middle and high school student participants, supported by 23 high school volunteers, WHS Computer Science teacher Robert Cohen, WEF, and the community, gathered to design and create apps to solve real problems in Wellesley. Stop by the CreateAthon exhibit to as well as apps designed by WHS students in the Building Android Apps class. **Award winning teams will be recognized at 1:55 PM in the Auditorium.**

WELLESLEY STEM EXPO

INSPIRING THE NEXT GENERATION

wef

April 8, 2017
Wellesley High School

OVERVIEW OF ACTIVITIES

10 AM-2 PM ....**Exhibits, Workshops & Student Showcase**

2 PM....**Keynote Speaker**
Dr. Edmund Bertschinger, MIT Professor of Physics
"Rocking Spacetime: The Discovery of Gravitational Waves from Colliding Black Holes"

Sustainability Challenge and CreateAthon Winners Recognized

3-4 PM....**STEM Professional Panel for High Schoolers**

www.wellesleyeducationfoundation.org

EXHIBITS

Robot Zoo

- Take Control of NASA's Valkyrie Humanoid Robot – UMass Lowell
- Robots that Walk and Run – Boston Dynamics
- Tiny Robots, Squishy Robots, and More! – Harvard Microrobotics Lab
- Cool and Practical Robots – iRobot
- Lend us a Hand – Test our Robotic Grippers! RightHand Robotics
- Experience Your Own Robot Avatar – Vecna
- StandX: Robotic Chair – Robilis
- FIRST Tech Challenge Robotics Team – A Few Loose Screws
- Wellesley FIRST Lego League Teams in Action
- Snapping Snake, Bottle-Flipping & Other Robots – WMS Robotics
- Explore the Formula SAE Electric Vehicle – Olin Electric Motorsports
- The Mystery Machine: An Autonomous Robotic Racer – Olin College of Engineering
- Mass State Police Bomb Squad
- Program a Robot – Schofield Elementary
- Pet Robotic Animals, Test Video Games – Empow Studios
- WE LOVE DRONES – Sat-Drones or courtyard weather permitting
- BotBall Team at Work – WHS Robotics Club *(Room 156)*
- Meet the Robots: Lava & Sky – Wellesley Free Library *(Room 226)*

Makerspace: Design, Innovate and Create

- Watch 3D Printers in Action – Wellesley Education Foundation
- Gumdrop Towers: How High Can You Go? – Fiske Elementary
- Maker Space, Building Bridges – WMS
- Code a Dance Party Lamp – Brainy Yak Labs
- Fun with 3D Printing and 3D Scanning! – Toysinbox 3D Printing
- Make with Montessori – The Riverbend School
- Engineer a Balloon Powered Vehicle – Tenacre Country Day School
- Design Challenge – Epiic Solutions
- Hands-on Engineering Education for everyone – Tufts Center for Engineering Education and Outreach
- Don't Feed the Bears: Design and Construct the Finish to a 12ft Ski Jump – Explo
- Sew Electric – WMS
- Record Breaking Ball Machine, Laser Engraver, Scratch Built Computer, Revolutionary Highway Improvement and More! – WHS STEM Club *(Room 158)*
- Make Videos on a Green Screen – WHS Broadcasting Studio *(Room 174)* Open 10-12
- Solarplate Printmaking – WHS Art Department *(Room 248)* Open 11-1
- Balsa Bridges and High Speed Videos – WHS *(Room 250)*
- Innovation Lab – Fay School

Coding and Technology

- Fun with MATLAB! – MathWorks
- Wellesley CreateAthon – WHS Computer Science Club
- Minecraft in Education – Saint John School
- Automatic Handwritten Equation Recognition – Brandeis University and Schofield Elementary
- Olin Students Talk App Design – Olin College

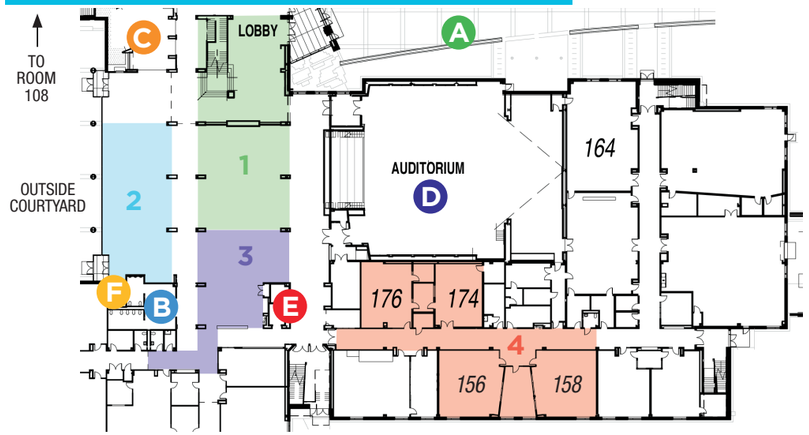
Living Things: Birds, Trees and Honey Bees

- The Science of Plant Pollination – Bates Elementary
- The Wild World of Plants – Mass Hort
- Compost Odyssey – Land's Sake Farm
- Meet the Succulents – Wellesley College Botanic Gardens
- Let's Talk About Trees – NRC/WHS Evolutions Program
- Honey DNA and Urban Beekeeping – The Best Bees Company
- Environmental Education and STEM – Mass Audubon/Drumlin Farm *(Room 215)*
- The Chicken: Our Friend and Food – Natick Community Organic Farm *(Room 216)*
- Animal Surgery – Hancock Animal Hospital, LLC *(Room 231)*

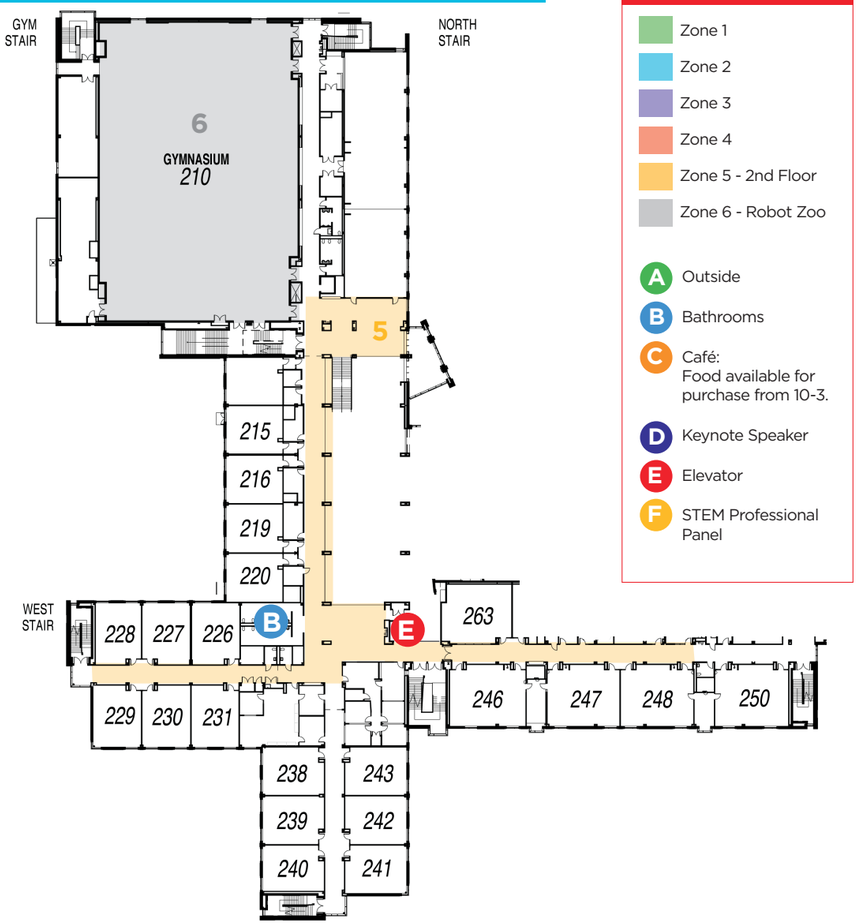
WEF STEM Grants In Action

EXHIBITS, WORKSHOPS, & SHOWCASE FLOOR PLAN

First Floor



Second Floor



KEY

- Zone 1
- Zone 2
- Zone 3
- Zone 4
- Zone 5 - 2nd Floor
- Zone 6 - Robot Zoo

- A Outside
- B Bathrooms
- C Café: Food available for purchase from 10-3.
- D Keynote Speaker
- E Elevator
- F STEM Professional Panel

EXHIBITS

Our Planet and Beyond

- Learn how to Waste Watch – Bates Elementary
- Engineering & Erosion: Become a Coastal Engineer! – New England Aquarium
- Build Your Own River – Wellesley College
- Clean Water in Your Cup! – Wellesley Natural Resources Commission
- Aquaponics: Another Fish Story – WHS Evolutions Program
- Wellesley Middle School Solar Panels – WHS Evolutions Solar Team
- Home Energy Losses: An Infrared Image – Wellesley Saves and HomeWorks Energy
- Oceanography Lab, Drive an ROV – Hardy Elementary *(courtyard)*
- Meteorites, R2D2 Robot, Segway, and more! – Clay Observatory
- Sustainability Challenge Entries – Sustainable Wellesley
- Power to Choose Campaign – WHS
- Man in the Moon?! – WMS Sixth Grade Science *(Room 219)*

Food: Down to a Science

- Design/Tech Challenge: Growing Hydroponically – WMS
- Science is -321 Degrees Cool! – Subzero Ice Cream & Yogurt
- Science of Fries – VEGGIE FRIES

Chemistry and Physics

- Spin Doctor – Thermo Fisher Scientific
- Augmented Reality Sandbox – Cambridge Science Festival & Science on the Street
- Optics is Everyday Life – NES/OSA
- Hands-On Fun – The Discovery Museums
- Is it magic? Nope, just chemistry! – WMS
- Absorb, Collapse Relax – Exponent Consulting
- The Phantoms of Electricity: Electrons – Crosspoint Engineering
- The Aerodynamics of Kites in Flight – KitingUSA.com
- Watt is Going on?? – MassBay Community College
- STEM Fun with BALANCE! – STEM BEGINNINGS

STEM PROFESSIONAL PANEL FOR HIGH SCHOOLERS

Faculty Dining Room, 3 - 4 PM (F)

Are you wondering how to select courses and chart a path that will prepare you for college, grad school, and careers? Hear our panel discuss what schools and employers are looking for, and how you can best prepare for admissions, job interviews, and the 21st century workplace. Bring a friend or parent with you! Q&A will follow panel discussion.

Panelists: Dr. Jason Kim, Professor of Medicine and longtime interviewer for Yale Medical School; Jim Cracraft, a software engineer with degrees in aerospace engineering and finance; Liz Callanan, who attended Wellesley, Dartmouth and MIT, before getting an executive MBA and working in corporate and nonprofit philanthropy; and Dr. Rob Martello, Associate Dean for Curriculum and Academic Programs at Olin College of Engineering.

STUDENT SHOWCASE

Zone 4, 10 AM - 2 PM

Come see some of the unique and fun STEM activities students in Wellesley are doing!

Engaging Young Engineers – PAWS
Kindergarten Discovery Zones – Schofield
WEF, Weatherbug and the Wellesley Public Schools
Outdoor Learning: Supporting Our Teachers – WPS
Comparative Planetology – WHS

- Get Your Hands on a High Powered Rocket! – Edge on Science
- The Science of Bottle Flipping – Hunnewell Elementary
- Science of Figure Skating – Upham Elementary
- Hovercrafts and more! – WMS Science Olympiad
- Gizmo Playground – WMS *(Room 219)*
- How do Circuits Work? Learn with littleBits! – Wellesley Robogals *(Room 220)*
- Measuring in Minuscule Measurements; Come Play with Micropipettes! – WHS *(Room 230)*
- Acids and Bases in the Home! – WHS *(Room 230)*

Science of Being Human

- Think Like a Scientist: MEDscience Program – Harvard Medical School
- Understanding Diabetes & Obesity Using Mice – University of Massachusetts Medical School
- Join our "Baby & Child Scientists" – Boston Children's Hospital
- Saving Lives with Simulation – Newton-Wellesley Hospital
- Injury Risk Screening – Train Boston
- Assemble a Gene – WHS *(Room 230)*
- Wellesley College Neuroscience Brain Booth *(Room 247)*

Fantastic Mathematics

- Driving Innovation – Raytheon Company
- Math Casino – RSM Wellesley
- Jelly Bean Math: Delicious Problem Solving – Sprague Elementary
- Math Detectives: Who's Up for the Challenge? – Wellesley College
- Make your own Secret Code – Olin College of Engineering
- A MIT Cryptography Lesson – Foundation Ceibal
- Math Spring, an Intelligent Tutoring System – WPI