

2018 DuPage Countywide Institute Day

Downers Grove North High School
Friday, March 2, 2018

Schedule

07:15 – 08:00	Attendee Registration & Check-in	Main Street entrance lobby
08:00 – 08:50	Session #1	Classrooms
09:00 – 10:30	Session #2	Auditorium / Classrooms
10:40 – 11:30	Session #3	Classrooms
11:40 – 12:30	Session #4	Classrooms
12:40 – 01:40	Session #5	Auditorium / Classrooms

PLEASE NO FOOD OR DRINK IN THE AUDITORIUM

NOTES:

1. **CPDUs** – Due to requirements on the number of CPDU/PD hours being given (5.0), no credit will be given for leaving prior to the end of the final session at 1:40 pm. In order to be given PD hours for the conference, you must do the following:
 - Upon arrival, sign-in at the registration table and pick up your name badge.
 - After the final presentation, sign out by turning in your name badge and completed survey (received when you signed in). Turning in your name badge and survey is the equivalent of signing out.
 - If you submitted your IEIN on your registration, your “Evidence of Completion” for PD will be emailed directly to you a few days after the conference. If you did not supply an IEIN, your name badge will say “No CPDU” in the lower right hand corner. Contact mheinz@csd99.org with any questions.

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BEVERAGES AND SNACKS PROVIDED BY:



Session Summary

Session #1 8:00 – 8:50

Practical Applications of Mindfulness in the Science Classroom

In this presentation, we will be discussing how we have implemented the brain based strategies from the book *Neuro Teach By*: Glenn Whitman and Ian Kelleher. We will discuss how these strategies have impacted us as educators to better align the way we teach to how the adolescent brain works.

Presenters:

- Erin Flanagan - Downers Grove North High School; Teaches Honors Biology 400 and Anatomy & Physiology
- Patrick Murphy - Downers Grove North High School; Teaches Honors Biology 400 and AP Biology
- Lindsay Panopoulos - Downers Grove North High School; Teaches Honors Biology 400 and Biology 300
- Ashley Remegi - Downers Grove North High School; Teaches Honors Biology 400, Co-taught Physical Science and Sophomore AVID

Target Audience: Grades 6- 12

Presentation time: Session #1 & #3

Location: Classroom 300

Science Communication in Your Classroom

NGSS includes a standard on science communication, what could this look like in your classroom? In this session, you will learn ideas for engaging students in science communication in your science classroom, with special focus on chemistry. You will also learn some new ways professional organizations are communicating information to your students (video, story sorters, and infographic formats). I will also discuss how I teach science communication in a high school research course with a focus on what skills are emphasized in the course. If you have students doing research projects and/or the science fair, you will get additional valuable resources for lessons and ideas. Samples lessons and ideas will target high school chemistry classroom.

Presenter: Julieann Villa – Teacher at Niles West High School in Skokie, IL; teaching for 20 years in both high school and middle school. Ten years ago, Julieann co-founded the STEM research program at her school which ignited her passion for science communication and lead to a newly minted master's in communication from Northwestern University.

Target Audience: Grades 9-12

Presentation time: Session #1 & #4

Location: Library (room 250)

Session Summary

Session #1 8:00 – 8:50

The Science of Learning: What research reveals about the nature of learning and how best to nurture it

In this presentation, Tom will explain how educational neuroscience is changing the way intelligence and learning are understood, and he will share research-based teaching strategies that support the student-centered learning approach championed by NGSS. To best support student learning, educators should understand some basic concepts about brain biology and their relationship to learning. Research in neuroscience and cognitive science has revealed much about the biology of learning by establishing that the physical manifestation of learning is the growth of a brain's neural networks. Work in these fields and psychology has identified the environmental conditions and teaching strategies that cultivate effective learning. In this presentation, participants will learn about these high-impact strategies and will have the opportunity to explore how best to apply them in their classroom.

Presenter: Tom Flanagan - Biology Teacher at New Trier High School

Target Audience: Grades K-12

Presentation time: Session #1 & #3

Location: Classroom 200

Easy Application of Engineering Principles in the Science Class

This presentation will provide several examples of how we can easily tweak our instruction to including the Engineering Standards laid out by the NGSS. Taking our current explorations just one step further allows the kids to see Engineering strategies in the Scientific work they do in our classes.

Presenter: John Lewis – Retired Physics teacher Glenbrook South HS; Golden Apple Recipient

Target Audience: Grades K-6

Presentation time: Session #1 & #4

Location: Classroom 304

Assessment of 3-dimensional Learning

Interactive presentation of ideas and resources.

Presenter: Gil Downey – CEO, Downey Educational Consulting

Target Audience: Grades K-8

Presentation time: Session #1, #2, #3, #4, & #5

Location: Student Cafeteria (room 153) Lower section

Session Summary

Session #1 8:00 – 8:50

Personalized Student Learning: The Use of Technology for Formative Assessments and to Amplify the 4 C's

In this session, we will explore the newest technologies that will help personalize learning in your classroom. When the teacher focuses on their learning goals and the four C's (communication, critical thinking, creativity, and collaboration) an engaging, effective 21st-century classroom will be developed. You will learn about how Google for Education enhances communication, how Google Forms promotes critical thinking, how Google Drive will spark creativity, and how Google apps improve collaboration by syncing all Google tools. Teachers will leave the session better prepared to teach a class full of diverse learners with practical tips on how to leverage technology to reach all students.

Presenter: Scott Parker - Biology Teacher/Instructional Technology Coach; Downers Grove South High School, Biology and Co-Taught Biology

Target Audience: Grades K-12

Presentation times: Session #1 & #3

Location: Student Cafeteria (room 153) Upper section

Building Models of the Microbial World

Incorporating model building into my courses transformed my classroom; students now take center stage and demonstrate their understanding more freely. In this presentation, participants will have the opportunity to use modeling strategies while working through course materials developed by Project MICROBE at the University of Illinois. We will explore materials that are offered for free on the Project MICROBE website and evaluate how teachers might include models to help students understand the role of micro-organisms in ecosystems. The Project MICROBE unit, entitled *How do small things make a big difference? Microbes, ecology, and the tree of life*, includes lessons about the nature of science, the scale of the microbial world, and can be used to increase science literacy. After each lesson, students use visuals to represent their current understanding. Students present their visuals and thought process to the class while their peers think of questions that will help to add clarity to the presentation. The back and forth that takes place between presenters and their audience ultimately takes the Project MICROBE materials to new depths. The unit ends with an examination of ten articles based on current microbial research that have been modified to meet the needs of a high school classroom. Participants of the presentation will read the articles and develop a whiteboard model to represent the content of the research. Together we will share out how microbes impact human functioning.

Presenter: Kevin Knapik - Anatomy and Physiology, Earth and Space, and Biology teacher at Evergreen Park Community High School in Evergreen Park, Illinois.

Target Audience: Grades 9-12

Presentation time: Session #1

Location: College and Career Resource (room 127)

Session Summary

Session #1 8:00 – 8:50

NGSS for Middle School: What are your students doing today?

Work through an NGSS activity that engages students in multiple SEPs and CCCs while still addressing content. You will see some Common Core in this presentation as well!

Presenter: Carol Baker – NGSS Writer, NISE BOD

Target Audience: Grades 6-8

Presentation time: Session #1

Location: Alumni Room

Using Demonstrations to Build Relationships and Develop Grit

Grit is often defined as perseverance and a willingness to be wrong. This session will illustrate how you can build grit, generate discussions, and develop community while getting your students to take intellectual risks in the classroom.

Presenter: Glenn Lid- Retired Chemistry teacher, Proviso East; Disney Teaching Award recipient; USA Teacher Hall of Fame

Target Audience: Grades 6-12

Presentation time: Session #1 & #3

Location: Classroom 306 (Session #1) / Classroom 304 (Session #3)

Session Summary

Session #2 9:00 – 10:30

Climate Science

Congressman Foster, Tom Skilling and Don Wuebbles will present information regarding current climate conditions, detailed information about how the climate is being monitored, and the changes they have observed over the past several decades. The purpose of their presentation is to encourage teachers to bring climate science into their current curricular areas.

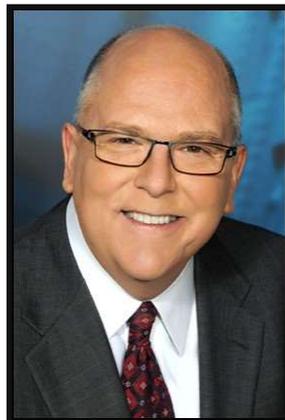
Presenters:

- Congressman Bill Foster (Il-11)
- Tom Skilling
- Dr. Don Wuebbles

Location: Auditorium



Congressman Bill Foster is an American businessman and U.S. Representative for Illinois's 11th congressional district, winning the seat in 2012. He is a member of the Democratic Party.



Tom Skilling is the chief meteorologist for WGN-TV and member of the National Weather Association.



Dr. Don Wuebbles is the Harry E. Preble Professor of Atmospheric Science at the University of Illinois since 1994. He is also a Presidential Fellow with the aim of helping the university system develop new initiatives in urban sustainability. He was awarded the Nobel Peace Prize in 2007.

Session Summary

Session #2 9:00 – 10:30

Assessment of 3-dimensional Learning

Interactive presentation of ideas and resources.

Presenter: Gil Downey – CEO, Downey Educational Consulting

Target Audience: Grades K-8

Presentation time: Session #1, #2, #3, #4 & #5

Location: Student Cafeteria (room 153) Lower section

NGSS Refresher: Do you need a refresher on the vision and philosophy of NGSS?

Do you have questions about integrating the 3 dimensions? Do you want to engage with others in talking about how NGSS has changed your instructional methods and philosophy? Do you just want to hear what others are doing? This session will involve a refresher on NGSS as well as time to talk and ask questions.

Presenter: Carol Baker – NGSS Writer, NISE BOD

Target Audience: Grades K-12

Presentation time: Session #2

Location: Alumni room

Session Summary

Session #3 10:40 – 11:30

Practical Applications of Mindfulness in the Science Classroom

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Target Audience: Grades 6- 12

Presentation time: Session #1 & #3

Location: Classroom 300

The Science of Learning: What research reveals about the nature of learning and how best to nurture it

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Presenter: Tom Flanagan - Biology Teacher at New Trier High School

Target Audience: Grades K-12

Presentation time: Session #1 & #3

Location: Classroom 200

Session Summary

Session #3 10:40 – 11:30

Cascades of Causality - Connecting Human activity, Whale Poo and Climate Change: Teaching Climate Change and Human Impact Without Controversy

The presentation will include displays and descriptions of the evidence which shows the cascade of causality that leads to acidification of the oceans, and ties in to ecosystem dynamics. The session will also include discussion of methods of teaching logic and thought process that leads to the inexorable conclusion that humanity has an impact on the earth that could very likely lead to the next mass extinction.

Presenter: Jamie Workman - Biology and Anatomy & Physiology teacher at Downers Grove South High School

Target Audience: Grades 7-12

Presentation time: Session #3 & #4

Location: Classroom 306

Personalized Student Learning: The Use of Technology for Formative Assessments and to Amplify the 4 C's

In this session, we will explore the newest technologies that will help personalize learning in your classroom. When the teacher focuses on their learning goals and the four C's (communication, critical thinking, creativity, and collaboration) an engaging, effective 21st-century classroom will be developed. You will learn about how Google for Education enhances communication, how Google Forms promotes critical thinking, how Google Drive will spark creativity, and how Google apps improve collaboration by syncing all Google tools. Teachers will leave the session better prepared to teach a class full of diverse learners with practical tips on how to leverage technology to reach all students.

Presenter: Scott Parker - Biology Teacher/Instructional Technology Coach; Downers Grove South High School, Biology and Co-Taught Biology

Target Audience: Grades K-12

Presentation times: Session #1 & #3

Location: Student Cafeteria (room 153) Upper section

Assessment of 3-dimensional Learning

Interactive presentation of ideas and resources.

Presenter: Gil Downey – CEO, Downey Educational Consulting

Target Audience: Grades K-8

Presentation time: Session #1, #2, #3, #4 & #5

Location: Student Cafeteria (room 153) Lower section

Session Summary

Session #3 10:40 – 11:30

You Be the Chemist: Essential Elements in Chemistry

This will be an in depth workshop for elementary and middle school teachers. It is sponsored by the Chemical Educational Foundation (CEF) and is known as the Essential Elements. Upon completion of this workshop, K-8 teachers will have access to over 35 science laboratory activities and teaching guides that are geared to individual grade levels (K-4 and 5-8). All labs and activities use household chemicals and equipment and can be designed to meet the level of inquiry or direct instruction as deemed appropriate by the teacher. Essential Elements is based on the 5E learning cycle approach to teaching. This cycle allows students to build their own understanding of new concepts from their own experiences. During an Essential Elements workshop, an instructor will lead you through a full 5E learning cycle (ENGAGE, EXPLORE, EXPLAIN, ELABORATE, EVALUATE) utilizing exciting lessons from CEF's YBTC Activity Guides. Example labs will be: Separating Salt and Pepper, Grasping for Air (WORKSHOP - Requires Pre-Registration)

Presenter: Mike Heinz - Downers Grove North HS, Science Department Chair, Chemistry teacher

Target Audience: Grades 5 -8

Presentation time: Double session: Session #3 & #4

Location: Classroom 303

Glucose Regulation and Human Memory: Using Context to Teach Complex Systems

In this session, participants will use glucose metabolism as a case study to examine the benefits of regulation and the consequences of dysregulation. As a group, we will work through a small unit from Project NEURON at the University of Illinois titled *Food for Thought: What Fuels Us?* to evaluate how we might use the context engrained in the materials to enrich the student experience. Participants will examine how glucose is metabolized by the body, regulated by the insulin/glucagon pathway, utilized during fight or flight, and studied to help us understand memory in aging populations and dysregulation in people with Type II diabetes. Consider how a rich storyline can help students make significant connections to complex sets of information and see their understanding come to life.

Presenter: Kevin Knapik - Anatomy and Physiology, Earth and Space, and Biology teacher at Evergreen Park Community High School in Evergreen Park, Illinois.

Target Audience: Grades 9-12

Presentation time: Session #3

Location: College and Career Resource (room 127)

Session Summary

Session #3 10:40 – 11:30

Facilitating student learning through experimental design, data analysis, and presentation. How plants can help you BRANCH out and reach new levels of STEM education

This session will be an information and hands on experience for teachers. Our goal is to help them get their students to develop real scientific questions, develop experiments, collect real data, help them analyze that data, and then present in a scientific poster style. The main lab specimen we use are plants and will be the focus of all the materials and exemplars in the presentation. Dr. Andrew Hipp will be providing his expertise on how to help kids collect and analyze data and how it connects to the real scientific world and the Morton Arboretum. He will also give his perspective of the partnership DGN has had with the Morton Arboretum over the last several years.

Presenters:

- Dr. Andrew Hipp -Scientist at the Morton Arboretum
- Jeff Grant- Downers Grove North High School Science teacher; teaches AP Biology and Anatomy & Physiology

Target Audience: Grades 6-12

Presentation time: Double session: Session #3 & #4

Location: Classroom 121

Using Demonstrations to Build Relationships and Develop Grit

Grit is often defined as perseverance and a willingness to be wrong. This session will illustrate how you can build grit, generate discussions, and develop community while getting your students to take intellectual risks in the classroom.

Presenter: Glenn Lid- Retired Chemistry teacher, Proviso East; Disney Teaching Award recipient; USA Teacher Hall of Fame

Target Audience: Grades 6-12

Presentation time: Session #1 & #3

Location: Classroom 306 (Session #1) / Classroom 304 (Session #3)

Session Summary

Session #4 11:40 – 12:30

Science Communication in Your Classroom

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Presentation time: Session #1 & #4

Location: Library (room 250)

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Target Audience: Grades K-6

Presentation time: Session #1 & #4

Location: Classroom 304

Assessment of 3-dimensional Learning

Interactive presentation of ideas and resources.

Presenter: Gil Downey – CEO, Downey Educational Consulting

Target Audience: Grades K-8

Presentation time: Session #1, #2, #3, #4 & #5

Location: Student Cafeteria (room 153) Lower section

Session Summary

Session #4 11:40 – 12:30

Cascades of Causality - Connecting Human activity, Whale Poo and Climate Change: Teaching Climate Change and Human Impact Without Controversy

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Presenter: Mike Heinz - Downers Grove North HS, Science Department Chair, Chemistry teacher

Target Audience: Grades 5 -8

Presentation time: Double session: Session #3 & #4

Location: Classroom 303

Session Summary

Session #4 11:40 – 12:30

It's Not Brain Surgery: Teaching Neuroscience through Case Studies

The nervous system is complex and supporting students in developing a deeper understanding of the brain can seem daunting and time consuming. In this session, participants will work through neuroscience lessons that can be adapted to fit any high school classroom using three case studies developed by Project NEURON at the University of Illinois. Case studies are a great way to have students explore topics that would otherwise go untouched while strengthening their understanding of the science and engineering practices. Participants in this session will examine how they can use a case study format to maximize engagement while working their way through topics like the evolution of color perception in mammals, the relationship between genes and environment in circadian rhythms, and the impact of traumatic brain injuries. In all three cases, students play an active role in investigating the phenomena and they practice developing conclusions based on multiple sources of data.

Presenter: Kevin Knapik - Anatomy and Physiology, Earth and Space, and Biology teacher at Evergreen Park Community High School in Evergreen Park, Illinois.

Target Audience: Grades 9-12

Presentation time: Session #4

Location: College and Career Resource (room 127)

Facilitating student learning through experimental design, data analysis, and presentation. How plants can help you BRANCH out and reach new levels of STEM education

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Presenters:

- Dr. Andrew Hipp -Scientist at the Morton Arboretum
- Jeff Grant- Downers Grove North High School Science teacher; teaches AP Biology and Anatomy & Physiology

Target Audience: Grades 6-12

Presentation time: Double session: Session #3 & #4

Location: Classroom 121

Session Summary

Session #5 12:40 – 1:40

Invisible Influence: The Microbiome and Human Health

The human microbiome is quickly being recognized as a dynamic part of the human ecosystem, and research is starting to demonstrate that using ecology to understand this ecosystem has profound benefits for patient wellness. The immune system controls our interaction with the microbial world, and yet the microbial communities in our bodies are central to modulating the immune response. Changes in the human microbiome have substantial influence on atopy, neurological disorders, metabolic disorders, and a range of complex conditions and disease states. We will discuss evidence of these mechanisms of interaction and how we have started to disturb the delicate balance of the immune-microbe equilibrium, impacting the development and function of our immune systems. Central to this disturbance is the distance we have placed between our children and the microbial world, which has been demonstrated to have a substantial influence on their physiological, immunological, neurological and even endocrinological development. Applying new strategies to identify how the microbial ecosystem correlates with diseases states and treatment efficacy through Microbiome-Wide Association Studies (MWAS) is altering the trajectory of precision medicine, and providing a new framework for facilitating patient care.

Presenter: Dr. Jack Gilbert

Target Audience: Grades K-12

Location: Auditorium



Dr. Gilbert is in the Department of Surgery at the University of Chicago and is Group Leader for Microbial Ecology at Argonne National Laboratory

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Location: Student Cafeteria (room 153) Lower section