

Concept-Based Mathematics:

Teaching for Deep Understanding

ESF Workshop

9-10th November 2017

Guest Presenter & Author

Jennifer Chang-Wathall



Overview

Traditional curriculum focuses on rules and procedures with little attention to the conceptual relationships of mathematics.

Mathematics is a language of conceptual relationships.

Traditional curriculum often assumes the deep understanding of concepts, and fails to teach for transferability, or to consider context.

This workshop will cover the concept-based curriculum design model specifically for mathematics. There will be some alignment with IB PYP, MYP and DP mathematics.

All content will be based on Jennifer Chang-Wathall's book *Concept Based Mathematics: Teaching for Deep Understanding in Secondary Schools*.

What will be addressed?

Why is it important for students to learn conceptually?

What are the facts, processes and concepts in mathematics?

How do I craft generalizations in mathematics?

How do I plan units of work for concept-based mathematics curriculum?

How do I captivate and engage students? Practical strategies for the classroom.

How do I integrate technology to foster conceptual understanding?

Who should participate?

Primary and Secondary mathematics teachers.

About the Author

Jennifer Chang-Wathall

Jennifer Chang-Wathall is an independent educational consultant, author and part time instructor for the University of Hong Kong. With over 25 years experience in the education field, Jennifer has worked in several international schools including South Island School, Hong Kong and The United Nations International School, New York and Island School, Hong Kong.

In the international arena she has presented numerous keynote addresses and workshops about concept-based mathematics and concept-based curriculum and instruction to K-12 educators. Jennifer holds a degree in Pure and Applied Mathematics from the University of Sydney and completed post graduate studies at the University of Hong Kong. Based on her Masters of Arts in Educational Technology she also facilitates concept-based mathematics online courses, gives talks about innovative uses of digital instructional media and how to effectively integrate a 1:1 program into the classroom.

As a qualified International Baccalaureate workshop leader ("Mathematical Studies, Mathematics Standard and Higher Level, Concepts and Inquiry in the Diploma Program and Approaches to Teaching and Learning") Jennifer has delivered numerous workshops in the Asia Pacific region. Her role as a field representative for the IB Asia Pacific serves as part of the quality assurance framework. She has been invited to give several talks at the IB Asia Pacific and IB Americas annual conferences.

She is a certified trainer in the DISCtm behavior assessment tool and she is a certified independent consultant in "Concept Based Curriculum Design" by Dr. H. Lynn Erickson. Jennifer works as an independent consultant helping math departments and schools transition to concept-based curriculum and instruction. She utilizes her skills as a certified Performance Coach to facilitate transition and change.

Jennifer consulted for the IB on the new diploma mathematics courses for first teaching in 2019 to develop a concept-based mathematics curriculum model. She is currently working with a major publisher on student reference books for the new IB Mathematics courses.

Her best-selling book titled "Concept-Based Mathematics: Teaching for Deep Understanding in Secondary Schools" was released in February, 2016. For further information, visit Jennifer's website at:

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