



CURRICULUM SPOTLIGHTS NO1

THiNK

THE
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INTEGRATED JEWISH EDUCATION AT THE TORONTO HESCHEL SCHOOL

GRADE
THREE

Integrated learning describes a theory and process of cross-disciplinary thinking that gives students the skills they need for a complex world. It bridges academic disciplines and silos of knowledge. It develops flexible and critical thinking skills. Children understand their integrated Jewish-Canadian identity and their individuality within community. Thinking Jewish and Jewish thinking combine academic excellence with the wonders of an integrated mind, body, and spirit.

Our three teachers knew that the logic of math served many masters.

Once Upon a Time There Lived an Equation

STORIES HELP MATH AND MATH HELPS STORIES

BY DVORA GOODMAN

Once upon a time, three teachers worked in a brown brick schoolhouse near a large green field. The three spoke the same language, lived together in a culture of inquiry, and taught mathematics. They told their young folk stories that connected numbers to logic and analysis. The educators wanted to do this because sometimes numbers seemed disconnected and abstract.

"Math isn't only about numbers, it's about life," said Danya Mintz, the Grade 3 teacher. During a semester-long theme, entitled "First Canadians, New Canadians: Cooperation and Conflict," Danya's students explored the mathematical patterns on artefacts made by First Canadians; the beaded sheaf of a hunting knife offered intricate markings and a sense of mystery as students wondered why early First Canadians created the elaborate object. They noticed small irregularities in the beading and appreciated how human errors appeared more regularly when objects were more handmade than now.

To reinforce their appreciation of mathematics in design, Danya's students made jewelry and narrated stories through pattern. For example, A was a blue bead representing water, BBB were green beads for a forest, and C was a beaver making her home there. The students discovered that a simple pattern, AB, was boring—visually and as a narrative—and they diversified the designs and complicated the math for more interest. Danya could eventually evaluate their learning through the sophistication of the plotlines they crafted.

"The students use their imaginations to visualize concepts," explained Marissa Unruh, the Grade 5 teacher. She would conjure up wide-ranging scenarios to teach multiplication and division. Considering equivalent fractions for halves, quarters, and eighths, Marissa described two friends happily dividing half a delicious cake equally; it was so easy to see that each could enjoy a quarter (half of the half). But then she asked what would happen if six new guests suddenly

arrived. How would they subdivide half a cake to serve eight people fairly? The students looked around to see where else complex fractions popped up in daily life.

You see, our teachers had a strategy. They knew that if students got used to setting up math scenarios in elementary school, the mindset would serve them well in junior high. When they encountered complex problems, they would know to find meaning first, and then assess for a grounded best estimate. The teachers saw that, once accustomed to thinking logically and analytically, the kids wouldn't even realize they were doing it.

In Grade 6, the link between math and other topics rose to a new level. Studying ancient civilizations, students encountered the numerical systems that were used by other cultures in other times. The ancient Mayans did not count in tens and they shaped their digits like stones, sticks, and eyes. Wondering why different numbering systems evolved as they did, students reflected that perhaps counting in 10s related to having 10 fingers and 10 toes. But Daphne reminded them that she believed that Mayans also had 10 fingers and 10 toes. The students had to look for another impetus.

Contemplating different possibilities and histories, the Grade 6 students began to feel an affinity for the mathematics of long ago; this fostered a more personal connection both to numeracy and ancient civilizations. Daphne was pleased to see this and explained how, in teaching, "a sense of intimacy and a feeling of relevance are especially advantageous as both are enduring substructures of understanding."

In the end, we see that our math story has three teachers and two plotlines. One tells of the wide application of numerical thinking to different topics in daily life: to history, culture, commerce, cooking, sharing—endless links to forge. The second explores channels of learning.

Mathematical intelligence lies deep within the brain; a



cognitive capacity as much about order and logic as it is about numbers. A great teacher knows how to reach it, stimulate it, and enhance it.

Our three teachers knew that the logic of math served many masters. For some students, dramatic narratives brought numbers and estimations imaginatively to life. For other students, who took naturally to abstraction, creative math scenarios served as models of order and detail, inspiring them,

in language arts class, to conjure more complex compositions than they might otherwise allow themselves to consider.

And so, inside the brown brick schoolhouse by the large green field, our three math masters concentrated intently on the teaching of math. They told stories, and deepened learning. They instilled habits that would serve the children well. They knew that the complexity of the puzzles their students would face, would only grow with them.

Beyond the Buzz

INTEGRATED LEARNING AT
THE TORONTO HESCHEL SCHOOL

BY DVORA GOODMAN AND PAM MEDJUCK STEIN

The words “integrated” and “integration” bounce around schools these days. Let’s be clear; their usage is very unclear. Schools do not use these terms in the same way. Their meaning originates in “*bringing together* parts of a whole” from early French, and in “*renewal*” from late Latin.

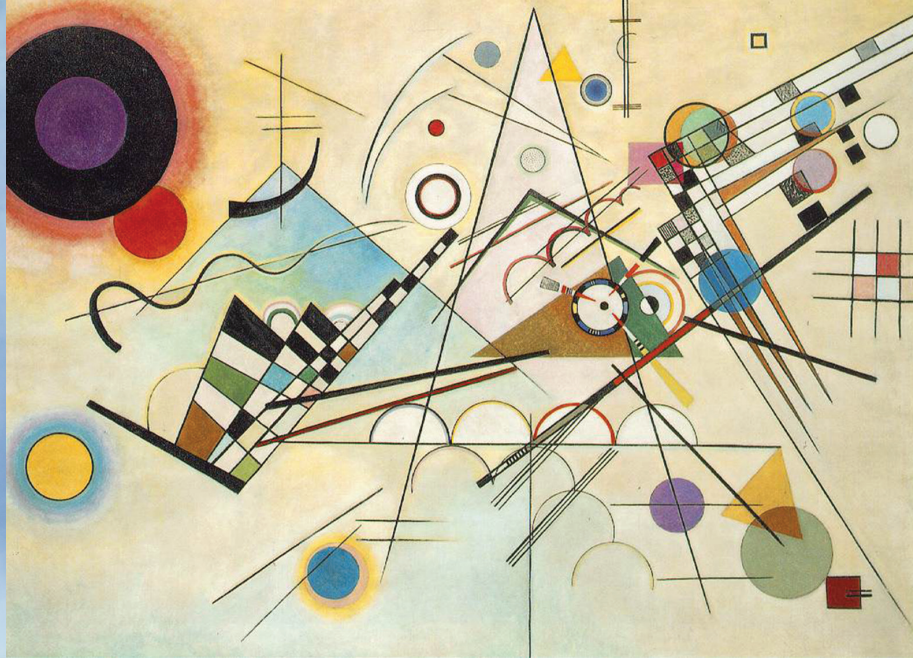
Picture yourself baking a cake: you select and measure flour, salt, baking powder, sugar, eggs, oil, and so on. You *bring together* and mix the ingredients in a bowl, pour the mixture into a cake pan, place it in the oven, and bake; what comes out is a *whole new* delicious creation. There are many recipes for cakes. The challenge is to select and handle ingredients that turn out a beautiful scrumptious product. At Toronto Heschel, carefully identified ingredients converge in thoughtfully planned units of study where four kinds of interaction transpire. Each of these is an essential ingredient without which integration—Toronto Heschel School style—cannot take place: they are teaching the whole child, learning through arts, thinking in academic disciplines, and connecting academic disciplines through thematic study.

1. Body, Mind, Spirit

Integrative education nurtures the whole child all day, premised on the interaction and interdependence of mind, body, and spirit. An acceptance of learning for complexity is essential on all levels; each child is a composite of many attributes, sensibilities, and circumstances. More than academics happens for the child at school. The day embraces social and emotional development, mobilizing individual expression through music, literature, dance, and visual arts, while pinpointing and supporting attributes which aid or complicate each child’s progress. The Jewish Canadian child owns a double identity—Jewish and Canadian—and integrative education welcomes the combination, neither dividing the day in half to distance the characteristics one from another nor separating universal study from Jewish study to filter each artificially.

An example of teaching the whole child is the Grade 7 unit “Experience Is a Sign for Me to Shine!” In this unit, 12 year-olds reflect on peer influence and engagement. The pre-teens examine social pressure as a historical phenomenon while studying ancient civilizations and Jewish responses to Hellenism in Judea at the time of the Maccabees. They observe how circumstances provide opportunity to strengthen values and let identity shine. Making the dilemmas of ancient history personal, students craft and design a Chanukiah to symbolize how they manifest their own Jewish identity in a secular, pluralistic world. They are growing young adults, a perfect age to be introduced to the practice of contextualizing Jewish identity among different influences in their lives.





2. Expression

Learning is the expression of understanding. Integration through the arts uses music, literature, dance, and visual arts as catalysts to finding expression beyond the constraints of words and numbers. Judith Leitner, Director of Integrated Arts, writes,

We see how the process of creating vivid imagery, sound, language, and movement engages a multiplicity of senses and makes visible a learner's unique voice...the arts stretch our minds, enabling inventiveness and expressivity as open-ended illuminations of points of view or mindsets crafted as questions, uncertainties, deliberate contradictions, provocations or as a bold deconstructions of form, space or time... Most importantly, we recognize that arts have the capacity to cultivate our most essential life tool: the art of self-esteem.

In Grade 4, students read a novel in small groups, analyze components of plot and character, and collaboratively write an original play that sees them perform their understanding of the novel. Drama, music, and visual arts become their tools as they digest and convey the novel in new ways. "The Beautiful Triangle" is a Grade 7 multi-disciplinary study that integrates geometry, aesthetics, language, the history of ideas, and visual arts. Students learn how the ancient Greeks used geometry as an analytical device, such as Thales's use of similar triangles to measure the heights of pyramids. They meet the visual art of Wassily Kandinsky, and they engage with geometry and the properties of triangles to express their thoughts and ideas.

3. Disciplined Thinking

Academic disciplines may be the building blocks for everything that children learn. Mastering a discipline involves proficiency in the way of thinking that is specific to that field of study; a mathematician may approach numbers differently than a geographer handles topography. When coursework is structured for students to think as the respective academic disciplinarian would think, they learn the subject matter with enhanced internalization. In each discipline there are three lines of inquiry. For example:

- What does science teach? How do scientists think? How do we inquire as scientists?
- What does history tell us? How do historians think? How do we research the past as historians would do it?
- What does the Talmud say? How did rabbis of the Talmud think and argue? How do we engage with text in the Talmudic fashion?

An important integrative interaction happens through the disciplinary approach. While each field of study offers content and sharpens specific cognitive abilities (logical, evaluative, inductive), student engagement with such variety of distinctive ways of thinking strengthens flexibility in habits of mind, which is as valuable a life skill as an academic one. The metacognitive aspect is also significant;

students become more aware of their own actions and thoughts: “This is how I’m thinking; this is what I’m doing.” Self-awareness and self-regulation of strategy and performance are critical in the development of independent thought and other life skills.

For example, the discipline of science involves inquiry arising from curiosity about the physical world. Scientists observe, hypothesize, experiment, and reach provisional conclusions that lead to more questions. The children begin learning how to observe in Junior Kindergarten and, by Grade 1, they are primed for the Scientific Method. They observe nature and learn about metamorphosis; they watch matter—for example, water—change between solid, liquid, and gas. Consciously, using the thought process and language of scientists, they ask, “How does matter change between solid, liquid, and gas?” Step by step, they develop a hypothesis, experiment, observe results, and draw conclusions. The scientific approach becomes theirs.¹

Grade 4 students learn the equally specialized skills of social scientists, exploring Canadian culture, natural resources, and geography through authentic artifacts and folk habits. Examining domestic utensils, old maps, songs, visual art, photography, and stories, students uncover the spirit of each Canadian province through the expressions of the people who live there.



4. Complex Thinking

Interdisciplinary approach is another ingredient. It sees synchronized topics weave skills and ethics together. The result is a more advanced learning of both. Coursework in different academic disciplines is coordinated by a single framework that centres around an overarching “big idea” with an ethical premise. Students keep the big idea in mind while learning skills that fulfill (or exceed) the academic demands of their grade.

The big idea in one Grade 3 integrated unit is to bring students to appreciate the important relationship between self-awareness and self-regulation, on the one hand, and social responsibility and action, on the other. The unit is called “Be responsible for myself, think of others, and act now!” Coursework weaves in the Jewish ethic, “If I am not for myself, who will be for me? If I am only for myself, what am I?” (Ethics of the Fathers/Pirkei Avot 1:14).

In language arts, the children take on the role of poets and share personal reflections about themselves. In math, they study place values and see how numbers depend on each other for their value. Perhaps as with people, unique face value is important, but interaction with others has consequences: digits such as “3” or “4” have an individual “face” value, but they change total value according to their “place” within a larger number, 234 or 43. Studying ecosystems, in science class, the children observe a single organism’s unique role, yet each organism impacts all others. First raising, then releasing salmon, they watch the living things meet their own needs while supporting the well-being of all. In Chumash class, students consider how, like Abraham in the Torah, every name can be a blessing: כל שם יכול להיות ברכה. They learn that a “good name” is acquired on assuming responsibility for ourselves and others through deeds (*mitzvot*) and the Ethical Path (*Derekh Eretz*).

Returning to the cake: what is produced by the four processes above does not resemble any one part of the ingredients. The cake is the personal awareness that each child feels when making sense of the learning. Recently, in a joint presentation, two Toronto Heschel graduates said,

In every class...there are hundreds of dots that are being connected. All of our classes share a common thread, a generative topic that can link to Talmudic studies, art classes, music, poetry, dance and so much more. Not only do you learn to dance, to sing, and to write but also you learn how to integrate diverse ideas and concepts.

Another much older graduate described integrative thinking at Toronto Heschel as “an operating system that just runs inside.” Well accustomed to integrative thinking, graduates continue to amaze and inspire us as learners, thinkers, Jews, and human beings.

1 See Pam Medjuck Stein, “The World Is My Teacher: Matter, Metamorphosis, and Miracles in Grade 1” in this issue.





CURRICULUM SPOTLIGHTS shine on our classrooms, school-wide programs and educational approach. They come from THINK, a semi-annual journal produced by The Lola Stein Institute (LSI), the research and publication arm of The Toronto Heschel School. THINK presents contributions from educators, parents, and community members on integrated Jewish education, critical themes on raising children today, and the interactivity of school and community.

There are many activities described in the Curriculum Spotlights, some of which may not be in current practice. The Toronto Heschel School's activities and curriculum evolve constantly as its educators continue to add wisdom and inspiration, but the ideas and philosophy remain constant.



The Toronto Heschel School
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