Design Thinking   http://www.idesignthinking.com/01whyteach/02whyteach.html

The natural responses of human beings to the conditions they encounter in daily life gives rise to the needs and desires that designing addresses and resolves. Questions of motivation, language skills, cognition, understanding, behavior, self-esteem and social well-being are all directly addressed through the different ways of thinking during design. A greater appreciation of individual interests and aptitudes and the way emotions influence thought comes out as pupils express and pursue goals as their own. Design thinking can also reveal problems during a child's development and point to natural therapeutic approaches to overcome weaknesses if they appear.

Design Thinking and Language Skills
Design Thinking requires the thinker to express their intentions, define and describe what is involved, conceptualize and structure information through logic, analogy and metaphor, express, and communicate what they understand, produce written and visual material, judge the appropriateness of what is expressed in a particular context for a particular purpose, and interpret knowledge as they apply it. All require and contribute to the development of language skills.

Design Thinking and Cognitive Science
Designing requires the thinker to focus their thoughts, identify critical information, imagine, conceptualize and analyze abstract models that represent complex things whether they are real or exist only in the imagination. It also requires attention to process, differential measurement and remembering. Design Thinking use every known principle for the organization of information (priority, nominal order, relationship, location, time, magnitude and utility) and relates them to different aspects of an experience. Knowledge of how the mind works that is consistent with design thinking is growing in cognitive science and neurobiology.

Design Thinking and Art
Because of a focus on creativity and formal aesthetics in the objects produced by artists and designers, art and design are often confused. Art is fundamentally concerned with expressing the sensibilities, interests and goals of the artist who is almost always in control of the art object and the way it is produced. Designing, generally speaking, is concerned with how to express what should be expressed to achieve a goal under the constraints of a particular situation that is often not controlled by the designer. Typically design goals arise through the interaction of the designer with the condition that exist in a situation of interest, and designing is often undertaken on behalf of someone other than the designer. Art places emphasis on Formative Thinking (identified by the cue word Suggesting in the I DESIGN model) while calling on all other modes of thinking during both its creation and appreciation. The intentions motivating art and design, the circumstances addressed, and the constraints on production are different, the modes of thinking about them are the same.

Design Thinking and Engineering
Although engineering is clearly a field where design thinking is applied, it is focused on how things work, and on issues of production and technology usually to a greater degree than on other considerations. It tends to emphasize Procedural Thinking identified in the I DESIGN model by the cue word Innovation, but calls on all other modes of thinking as well.

Design Thinking and Science
Although science seeks to explain while designing seeks to create, both use the same modes of thinking. In fact, scientific disclosure requires that each way of thinking be documented whenever scientific findings are reported. One must describe the intention and focus of the work being reported; the relevant references and critical variables; the hypothesis and conceptual approach; the experimental design and conditions; the methods used and their execution to collect the data; the findings as they confirm or deny the hypothesis; and finally the significance and implications of this knowledge for future work. This is a very direct translation of the I DESIGN model, and strong evidence that the modes of design thinking are used in science. However, because science is empirical, and concerned with the assessment of actual events it is focused more on Evaluative Thinking cued by the word Goal getting in the I DESIGN model although all modes of thought are employed.

Design Thinking, Society, Culture and History
How individuals develop and collaborate in societies to create cultures that over time produce histories is closely identified with how individuals, singly and in groups, learn from experience, and use the knowledge gained in future experiences for balancing, integrating, and understanding human life. All disciplines concerned with human experience and the subject areas they address tend to focus on the domain of Reflective Thinking identified by the cue word knowing in the I DESIGN model. While learning and the successful resolution of an intentional experience requires the use of all modes of thinking, it

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is in historic memory that the autobiographical self, and their understanding of others is built.

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