

Inventory of Basic Dispositions

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VIEWS ABOUT MATHEMATICS SURVEY TAXONOMY

Core-disciplinary aspects <i>Students need to realize the following aspects of mathematics and to construct their own knowledge accordingly</i>	Items
<p>1. Nature of mathematics and of anticipated student knowledge:</p> <p>N1 Mathematics is about generic: (a) coherently interrelated conceptions, and (b) patterns of thinking, including proof and problem solving, - rather than about idiosyncratic and isolated, situation-specific terms, statements and procedures.</p> <p>N2 Mathematicians rely on multiple ways to (a) represent the situation in any problem and (b) solve it; - rather than concentrating on a single representation or a single problem solving strategy.</p> <p>N3 Mathematical representations help: (a) relate variables in meaningful ways, and (b) express such relationships objectively, - rather than being good for mere number crunching and open for subjective interpretation.</p>	<p>21, 22 24, 28</p> <p>23, 26</p> <p>25, 27</p>
<p>2. Connections:</p> <p>I1 Science and mathematics benefit from each other's knowledge, - rather than being each confined to its own domain.</p> <p>I2 Mathematicians rely on technology for deploying their knowledge in: (a) meaningful ways and (b) novel areas, - rather than for reproducing paper-and-pencil solutions of traditional textbook problems.</p> <p>I3 Mathematics is relevant to everyone's life, - and not just to mathematicians.</p>	<p>31, 32</p> <p>29, 30</p> <p>33</p>

Meta-cognitive aspects	Items
<p>3. Learning conditions:</p> <p><i>Locus of control:</i></p> <p>C1 Mathematics is learnable by (a) anyone (b) willing to make the effort, - not just by a few talented people. 2</p> <p>C2 Achievement depends more on: (a) personal effort, (b) self confidence and (c) perseverance 4, 7, 10 - than on the influence of teacher, peers or textbook.</p> <p>C3 Studying mathematics should be an (a) enjoyable, (b) confidence building and (c) self-satisfying experience, 1, 3, 11 - rather than a frustrating and intimidating undertaking for satisfying curriculum requirement.</p> <p><i>Meaningful understanding favors:</i></p> <p>C4 Students who come to class with a prepared mind, 5 - rather than those who study only after the teacher covers materials in class;</p> <p>C5 Those who seek information from alternative sources, 6 - rather than those who stick to the textbook;</p> <p>C6 Those who are (a) tolerant, and (b) open to others' ideas 8 - rather than those who stand blindly and firmly by their own ideas; and</p> <p>C7 Those who cooperate with others for knowledge development 9 - rather than for mere task achievement.</p>	
<p>4. Insightful, meaningful learning requires one to:</p> <p>L1 Construct new subject knowledge: (a) on one's own, and (b) delimit its 12, 16 scope, - instead of assimilating it from an authority and memorizing it as given. 15</p> <p>L2 Deploy knowledge following purposeful plans, 19 - rather than by recalling certain routines learned by rote.</p> <p>L3 Deploy knowledge in a variety of activities (paper-an-pencil exercises, 13, 14 case studies, etc.), - instead of concentrating on traditional end-of-chapter exercises.</p> <p>L4 Continuously: (a) justify, and (b) evaluate one's own work, 17 - rather than getting satisfied with mere task completion.</p> <p>L5 Look for the teacher as a mediator of learning 18 - rather than an authoritative source of information.</p> <p>L6 Contrast and regulate any discrepancy between one's own knowledge 20 and the target mathematics knowledge, - instead of blindly assimilating target knowledge.</p> <p>L7 Use assessment for self-evaluation and regulation - rather than for ranking oneself relative to peers.</p>	