

## Handout 4. Components and Subcomponents of Numeracy

### Context:

The use and purpose for which an adult takes on a task with mathematical demands.

**Family or Personal:** as a parent, household manager, consumer, financial, healthcare decision maker, or hobbyist

**Workplace:** as a worker able to perform tasks on the job and prepared to adapt to new employment demands

**Further Learning:** as one interested in the more formal aspects of mathematics necessary for further education or training

**Community:** as a citizen making interpretations of social situations with mathematical aspects such as the environment, crime and politics

### Content:

The mathematical knowledge that is necessary for the tasks confronted.

**Number and Operation Sense:** a sense of how numbers and operations work and how they relate to the world situations that they represent

**Patterns, Functions, and Algebra:** an ability to analyze relationships and change among quantities, generalize and represent them in different ways, and develop solution methods based on the properties of numbers, operations and equations

**Measurement and Shape:** knowledge of the attribute of shapes, how to estimate and/or determine the measure of these attributes directly or indirectly, and how to reason spatially

### Cognitive and Affective:

The processes that enable an individual to solve problems & link content & context.

**Conceptual Understanding:** an integrated and functional grasp of mathematical ideas

**Adaptive Reasoning:** the capacity to think logically about the relationships among concepts and situations

**Strategic Competence:** the ability to formulate mathematical problems, represent them, and solve them

**Procedural Fluency:** the ability to perform calculations efficiently and accurately by using paper and pencil procedures, mental mathematics, estimation techniques, and technological aids

**Productive Disposition:** the beliefs, attitudes, and emotions that contribute to a person's ability and willingness to engage, use, and persevere in mathematical thinking and learning or in activities with numeracy aspects

From: Ginsburg, L., Manly, M, and Schmitt, M.J. (2006). The components of numeracy [NCSALL Occasional Paper]. Cambridge, MA: National Study for Study of Adult Literacy and Learning. Available:

[http://www.ncsall.net/fileadmin/resources/resesearch/op\\_numeracy.pdf](http://www.ncsall.net/fileadmin/resources/resesearch/op_numeracy.pdf)