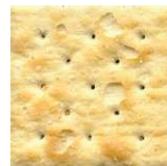
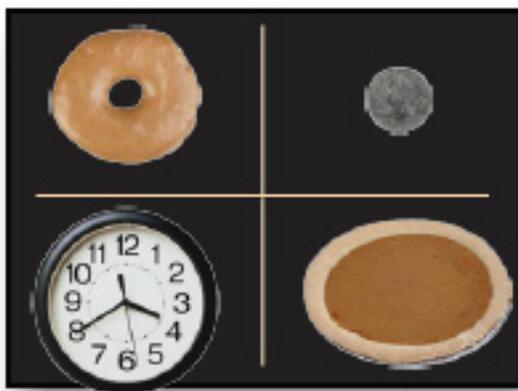
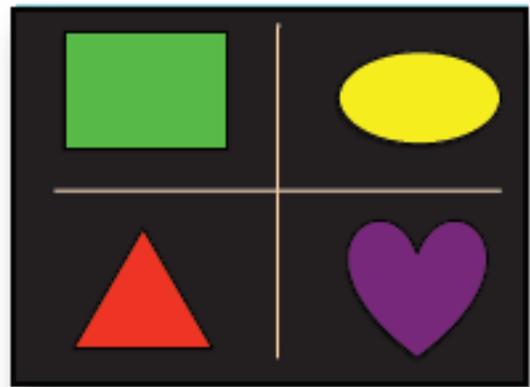


*An Introduction to the  
Educational and Metacognitive approach of  
Systematic Concept Teaching (SCT) together with a  
Sample Packet of activities*

*from*

*Intelligent and Effective Learning based on the Model for  
Systematic Concept Teaching*

*Practitioner's Manual for the Systematic Concept Teaching (SCT) Approach to the Prevention and  
Remediation of Learning Difficulties*



# **An Introduction to the Educational and Metacognitive approach of Systematic Concept Teaching**

Dr. Andreas Hansen, and Kelly Morgan, MA, SLP  
May 2018

The Systematic Concept Teaching approach aims at teaching Basic Conceptual Systems (re Color, Shape, Size, Position, Place, Surface Pattern, Direction and Number, etc.) and their related concepts by means of the Concept Teaching Model (The CTM) – in order to positively change students' prerequisites for thinking and learning; in short: teaching students how to be more effective learners. The primary developer of this approach was the late Magne Nyborg (1927–1996).

Generally, one can say that SCT is well suited for students starting at the ages of four or five years and upwards. This approach has also proven to be successful with adults who struggle with learning reading, writing, mathematics, etc.

Throughout more than 30 years, many teaching experiments and projects related to Systematic Concept Teaching have been carried out by Magne Nyborg and colleagues, including Andreas Hansen. These have repeatedly demonstrated positive results with students having varying learning difficulties, who have struggled with their learning of language, reading, writing, and other school subjects and skills of different kinds.

Andreas Hansen (Harstad, Norway) and Kelly Morgan (Seattle, USA) have collaborated over several years to develop a manual for teachers on SCT theory and practice, including lessons for SCT. This manual will be available in an electronic version in Fall 2018. A more comprehensive overview of the SCT theory and practice, including lessons built on the Concept Teaching Model, Analytic Coding exercises and much more in this connection, can be read about below.

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## **A more comprehensive overview of the SCT theory and practice.**

### **Systematic Concept Teaching (SCT) – What, how and why?**

Systematic Concept Teaching (SCT) is an educational and metacognitive approach based on Magne Nyborg's (1927-1996) comprehensive theory of learning. This theory emphasizes the role of language and, in particular, the role of Basic Conceptual Systems (BCS) (re Color, Shape, Size, Position, Place, Direction, Surface Pattern, Direction, Number, Time, etc.) as important prerequisites and tools for Analytic Coding, thinking and learning. These Basic Conceptual Systems and their related concepts can be taught by means of the Concept Teaching Model (The CTM), which was developed by Dr. Magne Nyborg.

This approach aims to help students who have had negative experiences concerning their learning possibilities develop positive expectations towards learning. Also, it seeks to teach them to direct and take control of their attention, training them in prolonging and expanding their short-term memory (STM) and working memory (WM) by consciously applying language in these processes (outer as well as internalized private speech).

Moreover, it makes students aware of and trains them in the use of language as a tool for further thinking and problem-solving. In short, an important aim for SCT is to teach students how to be more effective learners. This approach also includes training students in how to apply a precise and decontextualized (or situational independent) language when it is needed in communication, thinking and learning.

Teachers are trained to apply BCSs and their related concepts deliberately as tools for the teaching of school subjects, including skills of different kinds as students learn more and more BCSs and their related concepts.

The CTM is divided into three different Phases, named according to the particular processes represented in each Phase.

- Phase 1: **Selective Association** (or learning associations)
- Phase 2: **Selective Discrimination** (learning discriminations)
- Phase 3: **Selective Generalization** (discovering and verbalizing similarities and differences)

However, a fourth and basic process named Analytic Coding underlies the learning in all three Phases. In this context, Analytic Coding involves the students performing analyses and comparisons of the different objects presented in light of their knowledge about Basic Conceptual Systems and their related concepts. Thus, the students facilitate their discovery of the actual partial similarities and partial differences (What color, shape, size, position, number, etc. do the different objects in question have, and how are the presented and perceived objects similar or different based on the exemplified questions?). Analyses and comparisons corresponding to this are presumed to take place initially in an intuitive way. As students learn conceptual systems and their related concepts in a verbally conscious way, it is presumed that analyses and comparisons will then be performed on a more conscious level.

Below, is a very simplified illustration of the Concept Teaching Model, by which it is possible to teach Basic Conceptual Systems to a verbally conscious, generalized and transferable level. This illustration is an overview of the CTM with its three Phases, including possible procedures and dialogue in each Phase, using the example of a “round shape” as the focus of the simplified lesson for Basic Conceptual Systems and their related basic concepts. Please note that Phases 1 and 2 of the CTM below are demonstrated using only one task while Phase 3 uses two different tasks to give the reader an overview of what each Phase represents in general. (For a fully developed version of a CTM lesson, see Lesson 5. Round shape included in the attached Sample Packet.)

T =Teacher, S = Student

**Phase 1: Selective Association** (or learning association)



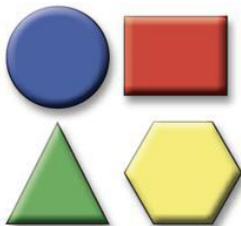
T: This figure has a **round shape**, because ... (Initially the teacher models the answer: “... it has no corners and the edge is curved all the way around”).

What **shape** does this figure have?

S: This figure has a **round shape**.

T: You did that nicely (positive and guiding feedback)

**Phase 2: Selective Discrimination** (or Learning Discrimination)



T: Point to the figure that has a **round shape**.

S: The student points to the figure with a round shape.

T: Why did you point to that figure?

S: I pointed to that figure because it has a **round shape**.

T: That’s correct. It has a round shape. (positive and guiding feedback)

**Phase 3: Selective Generalization**

*(Discovering and Learning Similarities)*



T: Are all of these figures **completely similar** (exactly the same).

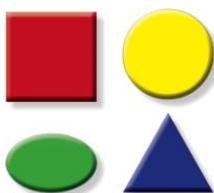
S: No, they are not completely similar.

T: That’s right. They are not completely similar, but they are **similar** in one specific way. In what way are all the figures **similar**?

S: The figures are **similar** in having a **round shape**.

T: You said that brilliantly, very well done. (positive and guiding feedback)

*(Discovering Similarities Accompanied by Discrimination)*



T: Point to the figures that are similar in having a **round shape**.

S: The student points to the 2 figures that are similar in having a round shape.

T: You are right. I like the way you looked carefully at all of these shapes and found the ones that are similar in having a round shape. (positive and guiding feedback)

## **What kind of students/population can benefit from Systematic Concept Teaching (SCT)**

Generally, one can say that SCT is well suited for students starting at four or five years of age, who can understand oral language information to a certain degree, and who can imitate short sequences of words (or signs) with the teacher and other students in a group as a model. Recently, some experiences with a simplified form of SCT indicate that students between two and three years of age might also benefit from SCT.

Throughout more than 30 years, many teaching experiments related to Concept Teaching have been carried out by Magne Nyborg and colleagues, including Andreas Hansen. To summarize the findings, it is possible to say that the following categories of learners have been shown to benefit from this approach to teaching:

- Early teaching of typically developing students; that is within Pre-school settings and in the early grades of elementary school
- Students, young people and adults with specific disabilities, including different kinds of language-learning disorders.
- Students and young people with general disorders of learning, combined with a lower IQ
- Students and young people whose primary language is not the dominant language of the culture in which they currently live
- Students and young people with “behavioral disorders”, including schizophrenia

In addition, there are good reasons to expect that students with hearing loss or vision problems can also benefit from the implementation of SCT.

## **A teacher's manual with lessons for Systematic Concept Teaching and much more**

Over several years, Andreas Hansen (Norway) and Kelly Morgan (Seattle, US) have collaborated on developing a manual for teachers on SCT theory and practice, including lessons for SCT, which will make the approach more available to English speaking potential users. This "soon to be published" manual will be available in an electronic version in Fall 2018, and will be titled:

### **Intelligent and Effective Learning based on the Model for Systematic Concept Teaching** *The Systematic Concept Teaching (SCT) Approach to the Prevention and Remediation of Learning Difficulties*

Part I: Teacher's Manual and materials related to the Systematic Concept Teaching (SCT) Approach to the Prevention and Remediation of Learning Difficulties.

Part II: Appendices containing additional materials for SCT including letter and sound practice materials, Analytic Coding exercises, a link to Magne Nyborg's 1993 eBook: "Pedagogy", etc.

Dr. Andreas Hansen  
Kelly Morgan, MA, SLP

The teacher's manual consists of 11 chapters together with an intervention program for Systematic Concept Teaching (SCT), located on a flash drive (when it comes to the electronic version). The intervention program consists of 56 lessons for SCT based on the principles of the Model for Systematic Concept Teaching (abbreviated: The Concept Teaching Model or, the CTM). Each lesson plan incorporates various hands-on activities together with sets of animated slides that are effective for teaching each of the Basic Conceptual Systems and the related Basic Concepts (conceptual vocabulary) they encompass. Many of these lessons also contain Home Practice Worksheets for follow-up cooperative learning between the student and her/his parents. Besides these, there are several more SCT resources on the flash drive, cf. the introduction to the resources on the flash drive presented below.

It is planned that an English language webpage for SCT will be created in order to provide a platform for further resources and for the sharing of teaching strategies and ideas related to SCT by the many different educators and professionals who use SCT in their school programs or research

## **On training for SCT**

It is anticipated that Hansen and Morgan will offer a 2-day basic workshop on the SCT approach. Ideally, such an introduction would be followed up by an additional 1 or 2-day training after approximately half a year. In some cases, an introduction to SCT of only 1-day might be considered. Full training on the SCT approach, however, by definition, would require a more significant number of days.

## **Some general "evaluations" from outside the SCT community of practitioners**

In some cases, SCT theory and practice has been compared to other approaches by professionals from outside the SCT community. This type of comparison happened in 2003 when Hansen and three others were challenged by Dr. Martin Miller to write about "mediation," after having participated in a Symposium on the topic at a conference the previous year: "The meaning of mediation. Different perspectives". Simply put, mediation refers to the specific role of adults and other more competent individuals in the cognitive development of students, as well as in how best to promote learning. A. Hansen wrote about mediation from the perspective of Magne Nyborg, Ruth M. Deutsch from the standpoint of Mediated Learning Experiences (Reuven Feuerstein), Yuriy Karpov wrote on Vygotsky's conception of mediation, and H. Carl Haywood wrote on mediation within a Neo-Piagetian

framework. The articles were published in the *Journal of Cognitive Education and Psychology* (Volume 3 Number 1 May 2003) with M. B. Miller as guest editor for the topic.

In Miller's discussion of the varying perspectives, he writes about the similarities and differences among the perspectives, with some references to the common historical bases of these different points of view and, of course, on many important aspects of mediation. When Miller compares the effectiveness of the various theories/models with their methods, he sums up his findings as follows:

It is worth noting that to my knowledge, Hansen shows striking objective evidence of *the* effectiveness of Nyborgian methods with special-needs students, those with significant intellectual and related learning deficits, in my view more convincingly than I have seen with any of the methods derived from the other models that have been described here, although I do not know the special education literature, if any, on Vygotskian derivatives in Russia. I believe that the effectiveness of the Nyborgian model in special education is explained by the particulars of the teaching methodology that we have read about, at least partially, in Hansen's paper.

(Miller, 2003, p. 84)

As the reader will notice, Miller gives a very positive evaluation of the effectiveness of SCT theory and practice. Another comment on SCT theory and teaching methodology comes from the late Dr. Robert Burdon, University of Exeter, as guest editor on a special issue of the journal: *Thinking skills and Creativity* (Volume 2 Issue 3 2009). The theme being: "Thinking goes to school". Hansen's article in this issue was based on a paper originally presented at a Conference in South Africa 2009 (South African branch conference of the International Association of Cognitive Education and Psychology in Cape Town, February 2009 – The conference theme: The art of thinking) on which Hansen was one of the Keynote speakers. His article is titled: *Basic Conceptual Systems (BCSs) – tools for analytic coding, thinking and learning: A concept teaching curriculum in Norway*. In reference to Hansen's article, Robert Burdon (2009) comments that among other things:

"... It would appear that the programme has been most widely and successfully used with students suffering from severe speech and language delay, but a case can surely be made that the logical process by which the key language concepts have been identified and the intensive reinforcement accompanying their introduction makes wider application worthy of consideration. ... (work in progress) ..., based on sound theoretical principles, which warrants wider dissemination and consideration."

Further evidence that SCT should be considered among the effective methods for those diagnosed as having intellectual disabilities is the fact that Hansen, in May 27–31, 1997 was invited to New York to participate in a symposium at the annual meeting of the American Association on Mental Retardation (*Now: The American Association on Intellectual and Developmental Disabilities*). The heading of the symposium was "Teaching thinking to persons with mental retardation (*Intellectual Disability*): International perspectives (psychology)". The four perspectives and the presenters are presented in the citation below by

the moderator Dr. H. Carl Haywood (Vanderbilt University, Nashville, TN), who writes in the abstract book for the meeting as follows:

Adequate development of basic logic systems has come to be recognized as a vital tool of learning and socialization. Seen as a learning tool, cognitive development is even more important for persons who, by definition, have difficulty learning than it is with those who learn more easily. Four perspectives on this issue, representing four national cultures (Australia, Norway, Israel, and Russia) are presented, each with a theoretical introduction and some empirical data in support of its use in the education of persons with mental retardation (*Intellectual Disability*), each with a theoretical introduction of its use in the education of persons with mental retardation. Ashman discusses Process-Based Instruction as an inclusion tool. Hansen presents evidence for educationally produced changes in abilities to learn, focusing on Basic Conceptual Systems and a Concept Teaching Model. Tzuriel presents the best-known model, that of mediated learning and structural cognitive modifiability, and shows how it is used in Israel and elsewhere to improve learning competence. Karpov and Gindis present the relevant cultural-historical approach of L.S. Vygotsky and shows its contemporary application in persons with mental retardation.

(H. Carl Haywood, 1997, p. 16)

## **Overview of the Teacher's Manual for SCT with contents of the chapters, lessons and much more:**

### **Comprehensive Contents:**

#### **Part I - Teacher's Manual and materials related to the Systematic Concept Teaching (SCT) Approach to the Prevention and Remediation of Learning Difficulties.**

##### **A. Teacher's Manual for the Systematic Concept Teaching (SCT) Approach**

The Teacher's manual presents the theoretical basis for the Concept Teaching Model together with practical strategies and information related to teaching according to the principles of Systematic Concept Teaching when it comes to BCSs and their related Basic Concepts. Additional information pertaining to the application of SCT to reading, written language, mathematics and to the teaching of other school subjects. In addition, several Case Studies that document the results of SCT with students having various kinds of language and learning difficulties.

*Chapter 1 Introduction with overview of the framework for Systematic Concept Teaching*

- Chapter 2 Central aspects of the learning theory behind Systematic Concept Teaching depicted in the PSI model, including comments related to its application in educational practice*
- Chapter 3 A description of the Concept Teaching Model and related aspects*
- Chapter 4 The Inventory of Basic Conceptual Systems (BCS), Analytic Coding and exercises in Analytic Coding*
- Chapter 5 Skills and a model for teaching skills*
- Chapter 6 Four Possible Proposals for Teaching Basic Conceptual Systems (BCSs) and related Basic Concepts*
- Chapter 7 Introducing Systematic Concept Teaching (SCT) for Parents plus Home Exercise Worksheets on the learning of Basic Conceptual Systems (BCS)*
- Chapter 8 Teaching Beginning Reading*
- Chapter 9 Teaching Early Mathematics*
- Chapter 10 Basic Conceptual Systems, Analytic Coding and the teaching/learning of academic concepts and school subjects*
- Chapter 11 Example Case Studies on Systematic Concept Teaching (SCT)*

## **B. Systematic Concept Teaching (SCT) Lesson plans, Slides and Home Practice Worksheets**

The SCT Lessons presented here target specific basic concepts from within the Basic Conceptual Systems. Each Basic Conceptual System and the particular concepts targeted within this curriculum are presented with a Lesson framework, animated slides to go with the lesson plan and Home Practice Worksheets for follow-up where applicable. The Lessons are shown in their general order of teaching. (See the attached SCT Sample Packet for a sample SCT Lesson focused on the concept and conceptual System of a Round Shape)

1. **General - Completely alike, the same (complete similarity) and similar in ... (partial Similarity)\***
2. **Color – The Color Blue**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets

Supplemental Color lessons:  
Color - Possibly more colors

3. **Color - Change in color\***
4. **General - Part of a Whole**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
5. **Shape – A Round Shape**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
6. **Shape – A Straight Line Shape**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
7. **Shape – A Curved Line Shape**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
8. **General – In a Group**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
9. **Size - Large in Size (in general) in relation to / compared to ...**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
10. **Size - Small in Size (in general) in relation to / compared to ...**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
11. **Size - Large Height (Tall) in relation to ...**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
12. **Size - Small Height (Short) in relation to ...**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
13. **Size - Large Length (Long) in relation to ...**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
14. **Size - Small Length (Short) in relation to ...**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
15. **Number - Large Number (in general) in relation to / compared to ...**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
16. **Number - Small Number (in general) in relation to / compared to ...**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
17. **General - Symbol for ...**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
18. **Number – The Number 3**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
19. **Number – The Number 4**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
20. **Position – In a Vertical Position**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
21. **Position – In a Horizontal Position**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
22. **Position – In a Diagonal Position**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
23. **Number – The Number 5**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
24. **Number – The Number 6**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
25. **Sound – Sound / Speech Sound**
  - a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets

26. **Place - First (Place) in a Sequence in relation to ...**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets  
 Supplemental Sequence lessons:
- 26a. **Place – Third (Place) in a Sequence in relation to ...**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
- 26b. **Place - Second (Place) in a Sequence in relation to ...**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
- 26c. **Place - Fourth (Place) in a Sequence in relation to ...**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
- 26d. **Place - Fifth (Place) in a Sequence in relation**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
27. **Place – (Placed) Right After in a Sequence in relation to ...**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
28. **Place – Last (Place) in a Sequence in relation to ...**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
29. **Function - Used to sit on, to write with, to play with etc.\***
30. **Place - (Placed) On (e.g. a line) in relation to ...**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
31. **Place – (Placed) On/to the Left in relation to ...**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
32. **Place - (Placed) Under in relation to ...**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
33. **Place – (Placed) On/to the Right in relation to ...**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
34. **Place - Between in relation to ...**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
35. **Surface Pattern – A Striped Pattern**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
36. **Surface Pattern – A Spotted/Dotted Pattern**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
37. **Direction – (Moving) From the Left to the Right in Direction**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
38. **Direction - (Moving) Up/Upward in Direction**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
39. **Direction - (Moving) Down/Downward in Direction**  
 a. Lesson plans for “(Moving) Down/Downward in Direction”  
 b. Animated Slides
40. **Direction - (Moving) From the Right to the Left in Direction**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
41. **Number - The Number 2**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
42. **Number - The Number 1**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets
43. **Number - The Number Zero – 0**  
 a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets

*Supplemental Number lessons:*

**43a. The Number 7**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**43b. The Number 8**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**43c. The Number 9**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**43d. The Number 10**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**44. Number - The Number of Ones (Units)**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**45. Number - The Number of Tens (Groups of Ten)**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**46. Surface Pattern – A Checkered Pattern**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**47. Surface Pattern - Flowered Pattern**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**48. Number - Making the Number in a Group Larger by Adding**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**49. Number - Making the Number in a Group Smaller in Taking Away**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**50. Number – a. Making the Number in a Group 1 Smaller by Taking Away 1**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**51. Number – b. Making the Number in a Group 2 Smaller by Taking Away 2**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**52. Number – a. Making the Number in a Group 1 Larger by Adding 1**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**53. Number – b. Making the Number in a Group 2 Larger by Adding 2**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**54. Shape – A Triangle/Triangular Shape**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**55. Shape – A Four-Sided Shape**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

**56. Shape – An Angle/Angular Line Shape**

*a. Lesson plans, b. Animated Slides, c. Home Practice Worksheets*

*b.*

*\*There are no formal SCT Lessons, Slides or Home Practice Worksheets for these concepts. Principles from SCT should be applied to teaching these Conceptual Systems and their related conceptual vocabulary.*

**C. A Parent Guide to SCT and the learning of Basic Conceptual Systems – booklet**

**D. Posters of the Basic Conceptual Systems (BCS) with examples of relevant concepts**

(For a sample BCS Poster, see Poster BCS 1-5 included in the attached Sample Packet.)

## **E. Short video clips of portions of SCT lessons**

*(currently in process)*

## **F. CTM assessment tools:**

### **1. *Children’s Knowledge of Basic Conceptual Systems (BCS) - Screening Test***

The administration of the BCS Screening Test provides a quick overview of a child’s development of the knowledge and use of BCS and their respective conceptual vocabulary. The test uses a combination of images on a computer or tablet and objects as stimulus. The BCS Screening Test is composed of 2 sections: Section 1. Identification and, Section 2. Abstraction. Each test section contains 15 items, covering a single concept within each of the Basic Conceptual Systems of Color, Shape, Size, Number, Symbol, Position, Place, Function/Use, Surface Pattern, Direction, Material, Surface Property, Weight, Temperature and Time. Section 1: Identification focuses on the child’s ability to verbally identify the key conceptual system and accompanying conceptual vocabulary for the targeted BCS. Section 2: Abstraction, focuses on the child’s ability to verbally identify the similarities between 2 or more items, using the vocabulary of both the key conceptual system and its accompanying conceptual vocabulary for the targeted BCS.

- a. *BCS Screening Test Revised* – Response Booklet
- b. *BCS Screening Test Revised* – Computerized Stimulus Plates (for presentation on a computer or tablet)

### **2. *Comprehensive Assessment of Children’s Knowledge of Basic Conceptual Systems (BCS) – Part I Identification and Part II Abstraction.***

The administration of the Comprehensive BCS Assessment Test provides a comprehensive inventory of a child’s development of the knowledge and use of BCS and their respective conceptual vocabulary. As with the Screening Test, this test uses a combination of pictures and objects as stimulus, divided into two sections: Section 1. Identification and, Section 2: Abstraction. Each test section contains 75 items, covering concepts from within each of the Basic Conceptual Systems of Color, Shape, Size, Number, Symbol, Position, Place, Function/Use, Surface Pattern, Direction, Material, Surface Property, Weight, Temperature and Time.

- a. *Comprehensive Assessment of Children’s Knowledge of Basic Conceptual Systems (BCS) - Part I. Identification* – Response Booklet
- b. *Comprehensive Assessment of Children’s Knowledge of Basic Conceptual Systems (BCS) - Part I. Identification* – Computerized Stimulus Plates (for presentation on a computer or tablet)

- c. *Comprehensive Assessment of Children’s Knowledge of Basic Conceptual Systems (BCS) - Part II. Abstraction – Response Booklet*
- d. *Comprehensive Assessment of Children’s Knowledge of Basic Conceptual Systems (BCS) - Part I. Identification – Computerized Stimulus Plates (for presentation on a computer or tablet)*
- e. *Comprehensive Assessment of Children’s Knowledge of Basic Conceptual Systems (BCS) - Part I. Identification – Response Booklet*
- f. *Comprehensive Assessment of Children’s Knowledge of Basic Conceptual Systems (BCS) - Part I. Identification – Computerized Stimulus Plates (for presentation on a computer or tablet)*
- g. *Comprehensive Assessment of Children’s Knowledge of Basic Conceptual Systems (BCS) - Part II. Abstraction – Response Booklet*
- h. *Comprehensive Assessment of Children’s Knowledge of Basic Conceptual Systems (BCS) - Part I. Identification – Computerized Stimulus Plates (for presentation on a computer or tablet)*

## Part II - Appendices

The following additional tools are designed to support teaching according to the principles of Systematic Concept Teaching. These include a link to the original text by Magne Nyborg that introduced the Concept Teaching Model to the world, examples of Analytic Coding (AC) exercises that can be used as frameworks for practice in using BSC and more Complex Conceptual systems and conceptual vocabulary. In addition, a series of materials designed to support the teaching of reading from the perspective of CTM and SCT are included in these Appendices.

- A. **Link to Online e-book, Pedagogy by Magne Nyborg, provided by the Norwegian National Library, available to all IP addresses. Published 1993 – Nordisk Undervisningforlag – 499.**

Pedagogy is the late Magne Nyborg’s seminal work on what pedagogy is and how knowledge of pedagogy can be used in daily teaching work. In this work, Nyborg presents a complete pedagogy built on the work of many internationally known experts as well as his own research and findings. It is subtitled: *The study of how to provide optimum conditions of learning for persons who may differ widely in pre-requisites for learning.*

Link to Pedagogy - <http://www.inap.no/engelsk/inaplitteng.html>

- B. **Examples of Analytic Coding exercises and lessons including Mind maps, Similarities and Differences Exercises (Comparisons) and Questions focused on conceptual knowledge and use, etc.**

The Analytic Coding Exercises included in the program provide a variety of Mind Mapping, Comparison (Similarities/Differences Exercises), and Questions focused on conceptual knowledge and related activities that are used to help students apply the knowledge and skills of Analytic Coding to further their learning skills. Example Analytic Coding Exercises are provided in the areas of Plants, Animals, Food and Drinks, Story, Book and Movie Elements, Clothing and Accessories, School Items, Tools and Appliances, Transportation, Buildings and Structures, People and Occupations, Toys and Sports items, Musical Instruments, Weather patterns, Places and other miscellaneous items. (For a sample of Analytic Coding exercises, see the set of Analytic Coding exercises using the theme of a Dolphin included in the attached Sample Packet.)

### **C. Materials Focused on Reading from an SCT/CTM perspective**

#### **1. Speech Sound and Letter Training worksheets**

The Individual Speech Sound and Letter Training worksheets presented here provide the student with practice in discriminating and identifying the specific speech sounds and graphemes of English. (For a sample Individual Speech Sound and Letter Training worksheet, see The Individual Speech Sound and Letter Training Worksheet for “b” included in the attached Sample Packet.)

#### *Speech Sound and Letter Training worksheets – Consonants*

- a. Speech Sound and Letter Training worksheet for b
- b. Speech Sound and Letter Training worksheet for c
- c. Speech Sound and Letter Training worksheet for d
- d. Speech Sound and Letter Training worksheet for f
- e. Speech Sound and Letter Training worksheet for g
- f. Speech Sound and Letter Training worksheet for h
- g. Speech Sound and Letter Training worksheet for j
- h. Speech Sound and Letter Training worksheet for k
- i. Speech Sound and Letter Training worksheet for l
- j. Speech Sound and Letter Training worksheet for m
- k. Speech Sound and Letter Training worksheet for n
- l. Speech Sound and Letter Training worksheet for p
- m. Speech Sound and Letter Training worksheet for r
- n. Speech Sound and Letter Training worksheet for s
- o. Speech Sound and Letter Training worksheet for t
- p. Speech Sound and Letter Training worksheet for v
- q. Speech Sound and Letter Training worksheet for w
- r. Speech Sound and Letter Training worksheet for x
- s. Speech Sound and Letter Training worksheet for y
- t. Speech Sound and Letter Training worksheet for z

*Speech Sound and Letter Training worksheets – Digraphs*

- a. Speech Sound and Letter Training worksheet for qu
- b. Speech Sound and Letter Training worksheet for sh
- c. Speech Sound and Letter Training worksheet for ch
- d. Speech Sound and Letter Training worksheet for th (voiced)
- e. Speech Sound and Letter Training worksheet for th (unvoiced)

2. **Letter Description and Speech Sound Pronunciation guides**

The Letter Description and Speech Sound Pronunciation guides presented here provide a vehicle for helping students learn to accurately describe the shape of letters together with helping them learn to accurately describe the production of specific sounds in English. These can be paired with the **Letter–Sound review cards** for more precise learning of the letter name – letter sound – letter production (motor). (For a sample Letter Description and Speech Sound Pronunciation guide, see the Letter Description and Speech Sound Pronunciation guide for the letter (grapheme) “a” and the speech sound (phoneme) short vowel / a / in the attached Sample Packet.)

*Consonants and Vowels*

- a. The letter (grapheme) “a” and the speech sound (phoneme) short vowel / a /
- b. The letter (grapheme) “a” and the speech sound (phoneme) long vowel / a /.
- c. The letter (grapheme) “b” and the speech sound (phoneme) /b/
- d. The letter (grapheme) “c” and the speech sound (phoneme) /k/ or /s/
- e. The letter (grapheme) “d” and the speech sound (phoneme) /d/
- f. The letter (grapheme) “e” and the speech sound (phoneme) short vowel / e /
- g. The letter (grapheme) “e” and the speech sound (phoneme) long vowel / e /.
- h. The letter (grapheme) “f” and the speech sound (phoneme) /f/
- i. The letter (grapheme) “g” and the speech sound (phoneme) /g/
- j. The letter (grapheme) “h” and the speech sound (phoneme) /h/
- k. The letter (grapheme) “i” and the speech sound (phoneme) short vowel / i /
- l. The letter (grapheme) “i” and the speech sound (phoneme) long vowel / i /
- m. The letter (grapheme) “j” and the speech sound (phoneme) /j/
- n. The letter (grapheme) “k” and the speech sound (phoneme) /k/
- o. The letter (grapheme) “l” and the speech sound (phoneme) /l/
- p. The letter (grapheme) “m” and the speech sound (phoneme) /m/
- q. The letter (grapheme) “n” and the speech sound (phoneme) /n/
- r. The letter (grapheme) “o” and the speech sound (phoneme) short vowel / o /
- s. The letter (grapheme) “o” and the speech sound (phoneme) long vowel / o /
- t. The letter (grapheme) “p” and the speech sound (phoneme) /p/
- u. The digraph (grapheme sequence) “qu” and the speech sounds (phoneme sequence) /kw/

- v. The letter (grapheme) “r” and the speech sound (phoneme) /r/
- w. The letter (grapheme) “s” and the speech sound (phoneme) /s/
- x. The letter (grapheme) “t” and the speech sound (phoneme) /t/
- y. The letter (grapheme) “u” and the speech sound (phoneme) short vowel /u/
- z. The letter (grapheme) “u” and the speech sound (phoneme) long vowel / u /.
- aa. The letter (grapheme) “v” and the speech sound (phoneme) /v/
- bb. The letter (grapheme) “w” and the speech sound (phoneme) /w/
- cc. The letter (grapheme) “w” and the speech sound (phoneme sequence) /ks/ or (phoneme) /z/
- dd. The letter (grapheme) “y” and the speech sound (phoneme) /y/
- ee. The letter (grapheme) “z” and the speech sound (phoneme) /z/

### *Digraphs*

- a. The digraph (grapheme sequence) “sh” and the speech sound (phoneme) /sh/
- b. The speech sound (phoneme) /zh/
- c. The digraph (grapheme sequence) “ch” and the speech sound (phoneme) /ch/
- d. The digraph (grapheme sequence) “th” and the speech sound (phoneme) voiceless /th/
- e. The digraph (grapheme sequence) “th” and the speech sound (phoneme) voiced /th/
- f. The digraph (grapheme sequence) “ph” and the speech sound (phoneme) /f/
- g. The digraph (grapheme sequence) “wh” and the speech sound (phoneme) /w/
- h. The digraph (grapheme sequence) “ng” and the speech sound (phoneme) /ng/

### 3. **The Letter and Speech Sound House**

*(currently in process)*

### 4. **Letter Name-Sound-Motor Production review cards**

The individual Letter Name-Sound-Motor Production review cards presented here provide a vehicle for students to practice their description of the 3 interconnected concepts of: letter name –letter (speech) sound – and the motor movements for accurate production of the shape of letters that should be taught/learned simultaneously. These can be paired with the **Letter description and pronunciation guide sheet** for more precise learning of the letter name – letter sound – letter production (motor).

### *Consonants and Vowels*

- a. The letter (grapheme) “a” and the speech sound (phoneme) short vowel / a /
- b. The letter (grapheme) “a” and the speech sound (phoneme) long vowel / a /
- c. The letter (grapheme) “b” and the speech sound (phoneme) /b/
- d. The letter (grapheme) “c” and the speech sound (phoneme) /k/ or /s/
- e. The letter (grapheme) “d” and the speech sound (phoneme) /d/

- f. The letter (grapheme) “e” and the speech sound (phoneme) short vowel / e /
- g. The letter (grapheme) “e” and the speech sound (phoneme) long vowel / e /
- h. The letter (grapheme) “f” and the speech sound (phoneme) /f/
- i. The letter (grapheme) “g” and the speech sound (phoneme) /g/
- j. The letter (grapheme) “h” and the speech sound (phoneme) /h/
- k. The letter (grapheme) “i” and the speech sound (phoneme) short vowel / i /
- l. The letter (grapheme) “i” and the speech sound (phoneme) long vowel / i /
- m. The letter (grapheme) “j” and the speech sound (phoneme) /j/
- n. The letter (grapheme) “k” and the speech sound (phoneme) /k/
- o. The letter (grapheme) “l” and the speech sound (phoneme) /l/
- p. The letter (grapheme) “m” and the speech sound (phoneme) /m/
- q. The letter (grapheme) “n” and the speech sound (phoneme) /n/
- r. The letter (grapheme) “o” and the speech sound (phoneme) short vowel / o /
- s. The letter (grapheme) “o” and the speech sound (phoneme) long vowel / o /
- t. The letter (grapheme) “p” and the speech sound (phoneme) /p/
- u. The letter (grapheme) “r” and the speech sound (phoneme) /r/
- v. The letter (grapheme) “s” and the speech sound (phoneme) /s/
- w. The letter (grapheme) “t” and the speech sound (phoneme) /t/
- x. The letter (grapheme) “u” and the speech sound (phoneme) short vowel /u/
- y. The letter (grapheme) “u” and the speech sound (phoneme) long vowel / u /
- z. The letter (grapheme) “v” and the speech sound (phoneme) /v/
- aa. The letter (grapheme) “w” and the speech sound (phoneme) /w/
- bb. The letter (grapheme) “w” and the speech sound (phoneme sequence) /ks/ or (phoneme) /z/
- cc. The letter (grapheme) “y” and the speech sound (phoneme) /y/
- dd. The letter (grapheme) “z” and the speech sound (phoneme) /z/

### *Digraphs*

- a. The digraph (grapheme sequence) “qu” and the speech sounds (phoneme sequence) /kw/
- b. The digraph (grapheme sequence) “sh” and the speech sound (phoneme) /sh/
- c. The speech sound (phoneme) /zh/
- d. The digraph (grapheme sequence) “ch” and the speech sound (phoneme) /ch/
- e. The digraph (grapheme sequence) “th” and the speech sound (phoneme) voiceless /th/
- f. The digraph (grapheme sequence) “th” and the speech sound (phoneme) voiced /th/

## **5. The Reading Program: Worksheets for teaching beginning reading (currently in process).**

A methodology for teaching letters (or teaching speech sound/pronunciation–letter relationship) for students who displays problems with beginning reading and need

a slower progression. Teaching how to divide words into speech sounds. Teaching sound blending or how to decode syllables and words (or making synthesis).

Adapted from *Basisbok 2: Oppgaveark– Metodikk bokstavl ring – Analysetrening og lesel ring*. Forfattere: Anne Svendsen, Andreas Hansen, Kirsti Koppen.