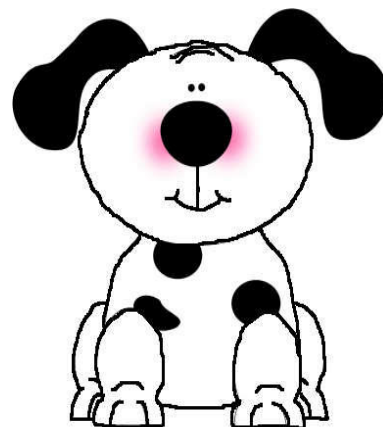
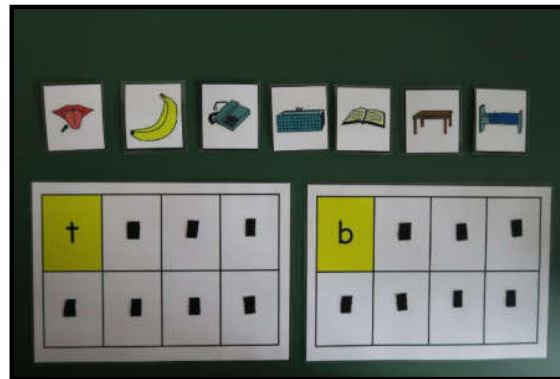


TEACH CVI MATERIALS FOR TRAINING OF TEACHERS CHAPTER IV



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- This publication was supported by the Erasmus+ Programme of the European Commission
- Please note that information provided in this folder for teachers is not exhaustive
- This publication reflects the views of the authors.
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TEACH CVI MATERIALS FOR TRAINING OF TEACHERS

Chapter IV: Resources and teaching materials to support the child's access to literacy

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Resources and teaching materials to support the child's access to literacy

Part 13: Introduction	312
1. Characteristics of children with Cerebral Visual Impairment (CVI)	312
2. Stages for literacy – Theory and classification of learning for children with CVI	314
 Part 14: Pre-reading	 320
1. Building a foundation for literacy development	321
2. Reading together with children with cerebral visual impairment	324
3. Strategies for children with CVI – Characteristics for objects	326
4. Simple books for children with CVI – Example	334
5. Creating tactile or books with objects with children with CVI	336
6. Matching objects and pictures	338
7. Pre-reading skills	340
7.1. Print motivation	340
7.2. Print awareness	341
7.3. Strategies	342
8. Pre-reading strategies and tips for children with CVI	343

9. Literacy strategies for children and young people with cerebral visual impairment.....	345
10. Story board for children with CVI.....	348
11. Visual perceptual skills required for literacy.....	350
12. Sensory stories	352
13. Example of resources for children with CVI.....	354
14. Practice looking strategy	355
15. Recognize logo on TV and radio channels.....	358
16. Select music by choosing a picture	359
 Part 15: Beginning readers	 358
1. Visual and motor - Pre-requisites for children with CVI as beginning readers	358
2. Beginning readers – Top tips and strategies	363
3. Strategies for children with CVI – Position large, high contrasting, simple objects and activities on a plain background	369
4. Strategies for children with CVI – Characteristics for pictures/graphics.....	370
5. Strategies for children with CVI – Characteristics for letters and text ..	377
6. Strategies for children with CVI – Characteristics for presenting different information	385
7. Case study – When Scarlett meets Rudolph	387
8. Example of resources – Literacy strategies for children and young people with CVI. Holistic approach to literacy – Supermarket.....	390
9. Literacy strategies for children and young people with CVI.	396
10. Example of resources for children with CVI.....	397
11. Functional reading. Agenda.	398
12. Matching phoneme with grapheme.	400
13. Letter knowledge.....	401
14. Adapted keyboard.....	403
15. Word building.....	404

Part 16: Curriculum general	405
1. Strategies for children and young people with CVI – Mainstream education setting.....	405
1.1. Strategies for adapting the classroom and position of the child with CVI	405
1.2. Distance related tasks	408
1.3. Learning to access – Close work tasks.....	410
1.4. Close work tasks – Graphics	412
1.5. Adapting classroom materials for a student with CVI.....	414
1.6. Self-reflection: creating vision friendly classrooms for children with CVI.	416
1.7. Strategies for children/young people with CVI – Mainstream setting. what can you see/recognise? Self reflection for the young person.	419
2. Example resources for children with CVI.....	424
2.1. Graphemes and phonemes	424
2.2. Mathematics	426
2.3. Reading book	427
2.4. Resources to independent reading	428
3. PCS symbols	429

Part 13: Introduction

In chapter 4 of this folder you will find a bank of teaching materials which have been gathered by the team working on the TeachCVI project. The materials are not exhaustive, but offer a range of suggestions and resources which you can use flexibly to suit the children, schools, parents that you are supporting. The materials have been collected from various sources as well as some which have been written specifically.

1. CHARACTERISTICS OF CHILDREN WITH CEREBRAL VISUAL IMPAIRMENT (CVI)

CVI typically has the following characteristics:

- **Strong colour preference** – especially red or yellow
- **Need for movement** – to gain or sustain visual attention
- **Visual latency** – delayed responses when looking at objects
- **Visual field preferences** – the optimum position preferred to view objects
- Difficulties with **visual complexity** – patterns/clutter may cause problems
- **Light gazing** – attracted by light sources
- Difficulty with **distance viewing** – problems with identifying objects which are far away
- **Absent visual reflexes** – lack of any blinking response to an approaching object
- Difficulty with **visual novelty** – lack of interest in new objects or environments

- **Absence of visual guided reach** – lack of reaching for objects within visual field¹
- Has difficulties with looking at objects
- Some children are photophobic while others prefer looking directly at light source
- Takes longer to respond to visual stimuli
- Some children prefer objects in movement rather than static objects
- Difficulty fixating on objects for any length of time
- Problems with depth perception
- Has difficulties with following the line when reading
- Objects need to be brought close to be seen
- Has difficulties distinguishing familiar from unfamiliar faces²

¹ Roman-Lantzy C. (2007). *Cortical Visual Impairment: An approach to assessment and intervention*. USA: American Foundation of the Blind.

² Zihl, J., & Dutton, G.N. (2015). *Visuoperceptive and visuocognitive disorders*. Wien: Springer.

2. STAGES FOR LITERACY – THEORY AND CLASSIFICATION OF LEARNING ADAPTED FOR CHILDREN WITH CVI

Keep in mind the following tips and key words for development of literacy for children with CVI:

A. The Discovery Theory of Learning

- Concrete objects and experiences
- Simple pictures
- Sign language
- Codes, symbols or text

According to the Discovery Theory of Learning by Gerome Bruner³, children have to pass through different processes of development until they are ready to understand the meaning of word and develop literacy – reading, writing, etc.:

1. Development of knowledge through direct actions with concrete objects, their environment, by practicing - action – reaction. The stage is related with encoding and storage of information about the environment, objects, scenes, etc.

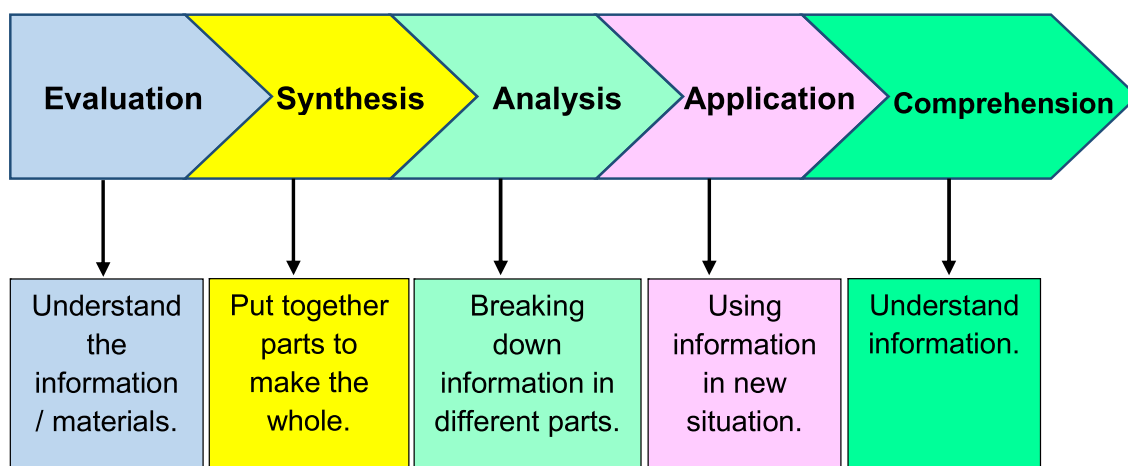
2. Development of knowledge by mental representation of objects – discriminate, identify and recognize, differentiate objects in images – development of visual memory data base.

³ Bruner, J. (1960). *Theories of Learning in Educational Psychology*. Adapted after <http://www.simplypsychology.org/bruner.html>

3. Development of knowledge by codes or symbols like language – use words and other symbols to describe experiences. For example the word “dog” is the symbolic representation for a single class of animals⁴.

B. Bloom taxonomy (classification) of learning⁵

What a child with CVI can do when they are faced with new information?



Children need to follow these stages in the process of learning:

- Detect and collect information from the environment – through the eyes and / or in combination with other senses – hearing, touching, smelling, testing, vibration (evaluation)
- Put together all elements and make a whole (e.g. put together all objects and give meaning to the room, put together the parts of object and identify the object, put together different parts of a picture and identify the picture, etc.) (synthesis)

⁴ Cziker, R.E. (2016). CVI in practice: strategies to develop visual-spatial skills for writing letters. Retrieved from <http://www.pathstoliteracy.org/users/roxana-cziker>

⁵ Adapted after Bruner, J. (1960). *Theories of Learning in Educational Psychology*. <http://www.simplypsychology.org/bruner.html>

- Breaking down information / objects / ideas into constituent parts - perceive different elements within the environment (e.g. see different objects in a room, see different parts of an object, see different elements of a picture, see different letters in a word, see different words in a text, etc.) (analysis)
- Understand information and relate it with other information and give feedback about the task (comprehension)

Bloom taxonomy (classification) in reading instruction and relation with literacy⁶

Stage	Understanding the classification of learning in relation to children with CVI
1. Evaluation of information within the environment	<ul style="list-style-type: none"> • The way in which a child interprets and perceives visual information differs from one child to another, depending on the severity of the medical condition, chronological and psychological age • Depends on how clearly the child can see the information within the environment, if the child can use their entire visual field • Depends on the ability of children to detect, distinguish and differentiate amongst different objects in space / environment • Depends on how many visual and multisensory stimuli opportunities the child is exposed to • Depends how clear the explanations about objects or materials are. These will be provided by the teacher depending on the child's level of functional vision and level of development

⁶ Classification of learning after Bloom adapted by Roxana Cziker for children with CVI.

Stage	Understanding the classification of learning in relation to children with CVI
2. Synthesis	<ul style="list-style-type: none"> Some children with CVI have difficulty in perceiving separately and then integrating together separate elements to see the whole picture Teaching strategies should be based on making the child aware about different elements of toys, objects, or pictures, by dividing them in to separate parts and then combining them together
3. Analysis	<ul style="list-style-type: none"> The child with CVI could have difficulty in breaking down information into separate elements, which makes it difficult to understand the information or solve a problem
4. Application	<ul style="list-style-type: none"> Some children with CVI could have difficulty in remembering or accessing previous information to gather new information This difficulty could be related with brain damage in different areas associated with visual memory, language, taking decisions or making the connections between different information

Stage	Understanding the classification of learning in relation to children with CVI
5. Comprehension	<ul style="list-style-type: none">• Some children with severe brain damage could have difficulty in understanding information• This is the reason why communication with children with CVI or the presentation of visual stimuli should be very diverse in line with their chronological age and level of development• The teachers could develop a base for assimilation of information based on concrete and real world objects to maximise the child's opportunity and access to his/her own rhythm

Part 14: Pre-reading

All children start their literacy development very early in life, long before they are aware that letters and words convey meaning. They participate in social relations, express their needs and communicate with others in many different ways. Many children learn to recognize environmental print, understand that pictures represent the real world and enjoy language play like rhymes and scribbling.

According to the classification of the National Centre on Deaf-Blindness^[1], the pre-reading child could be framed within the following categories:

Stage	Description	Age*
Building a Foundation for Literacy Development	E.g. chews on books, enjoys rhymes, attends to pictures, understands that an object can be a symbol for an activity, etc.	0 – 2
Early Emergent Literacy	Pretends reading, listens to stories, recites and fills in phrases in a story, scribbles, draws, etc.	2 – 4

* Age ranges indicate when one would expect children without disabilities to be engaged in the activities and behaviours listed and are provided for general reference only.

This part of the Teach CVI material presents resources for both small children with Cerebral Visual Impairment and children who have additional disabilities.

^[1] Adapted from <http://literacy.nationaldb.org>

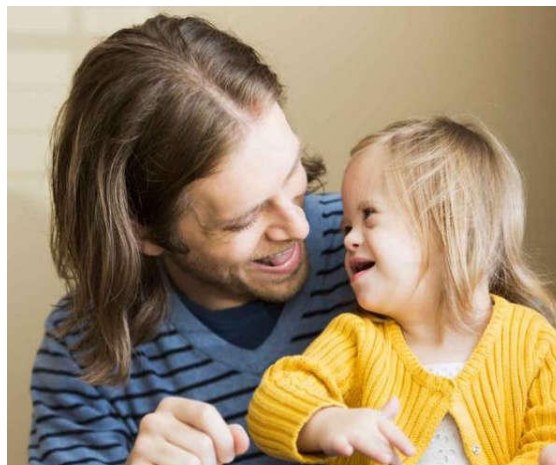
1. BUILDING A FOUNDATION FOR LITERACY DEVELOPMENT⁷

Literacy is something that builds on and supports social relationships, when people communicate with each other. Therefore, literacy development starts with building trusting relationships, communication and interaction.

Children with CVI have difficulties in interpreting and understanding the visual world. It is essential for them to have access to an adapted learning environment and communication that supports their understanding of what is happening around them, who are interacting with them and how they can actively participate in meaningful situations.

A. Develop a trusting relationship with the child

- Identify yourself when you interact with the child
- Choose a name, sign or personal identifier and use it consistently to let the child know who you are
- Say "Hello" and "Good-bye" and expect the child to do the same
- Communicate in different ways with the child – verbally, with body contact, making sounds, move together, etc.



Picture 1. Photograph: Retrieved from <https://icchef.bbc.co.uk/childrens-responsive-icchef/r/400/1x/cbeebies/BritishSignLanguage.jpg>

⁷ Adapted from <http://literacy.nationaldb.org/index.php/building-foundation/>

- Provide opportunities with a partner for turn-taking
- Expect, wait for and acknowledge all of the child's responses
- Identify the child's likes and dislikes
- Allow the child to direct communication topics (follow their agenda, not yours)
- Have frequent conversations with the child (who may or may not use spoken language)
- Incorporate rhythm, music, finger play and mime games into daily routines and activities

B. Embed opportunities for communication throughout the day

- Identify the child's preferred communication method(s) (e.g. body language, vocalisation, objects, pictures, spoken or sign language, etc.)
- Work toward the child's understanding that a partner is needed in order to communicate
- Provide opportunities with a partner for turn-taking
- Expect, wait for and acknowledge any and all child responses
- Put meaning to the child's actions and provide vocabulary for it
- Use consistent repetitive language (may be spoken, signed or both)
- Provide opportunities for children to make choices
- Use communication for a variety of purposes (e.g. make comments, ask questions, express feelings or give instructions)

Design learning experiences that are meaningful to the child

- Identify the child's likes and dislikes
- Use the child's preferences to make learning more meaningful and fun
- Determine the child's preferred sensory learning channels (e.g. visual, tactile, auditory, vestibular, etc.) and learning styles
- Use age appropriate activities and materials
- Establish routines around daily activities
- Decide ahead of time what words and concepts you want to focus on during each routine
- Use hand under hand techniques, especially when introducing new activities
- Promote active participation and/or partial participation



Picture 2. Hand under hand technique
(Photograph retrieved from <https://moodle.nationaldb.org>)

2. READING TOGETHER WITH CHILDREN WITH CEREBRAL VISUAL IMPAIRMENT⁸

For infants and children with CVI and severe cognitive disabilities, literacy learning is very much about having access to literacy – rich environments and adults who make reading time fun.

Strategies

- Present and store books, real objects and simple pictures at a distance the child can access and explore
- Let the child explore books, objects, pictures with all their senses (e.g. visual, tactile, auditory etc.). Give physical support to compensate for motor challenges
- Talk with the child about your joint experiences; name and describe what the child is seeing, touching, hearing, tasting, etc.
- Support the child to find the top and bottom of the book and the page
- Read aloud and let the child help you turn the pages
- Read expressively and slowly to keep the child's interest and attention
- Point at the words you are reading. Point out and describe details of pictures or objects in the book



Photograph: Retrieved from <http://www.wikihow.com/Read-Aloud-to-a-Child>

- Make reading time fun – cuddle, sing or rhyme with the child while exploring books
- Provide and read many different types of books with the child – books with objects, books with pictures, tactile books, books with sounds, etc.

Does the child have a favourite book? Reading the book as part of a routine helps the child to remember, anticipate, recognise pictures, key words and sentences and eventually fill in words and sounds – the perfect literacy experience!

3. STRATEGIES FOR CHILDREN WITH CVI – CHARACTERISTICS FOR OBJECTS⁹

Keep in mind the following tips and key words for developing understanding of objects characteristics for children with CVI – pre-reading stage:

- Keep the objects simple
- Use bright and simple colours
- Use a high contrast background
- Make sure that there are not too many distractors around
- Make sure that the visual stimulus / object is presented in the optimal visual area
- Try different distances when presenting objects
- Try presentation of objects both in light and dark conditions

What kind of objects could children with CVI who are in the pre-reading stage use?

- Use simple objects in simple and bright colours
- Use familiar and real objects from the child's environment – spoon, balls and plates in different colours – **Picture 3**
- Present different shapes, sizes and colours of the same object in order to give the child a diverse perspective of the same object
- Use bright and glittery objects – Christmas tree decorations – **Picture 4**
- Check that the glittery stimulus does not shine directly into the child's eyes to produce an uncomfortable effect in different lightning

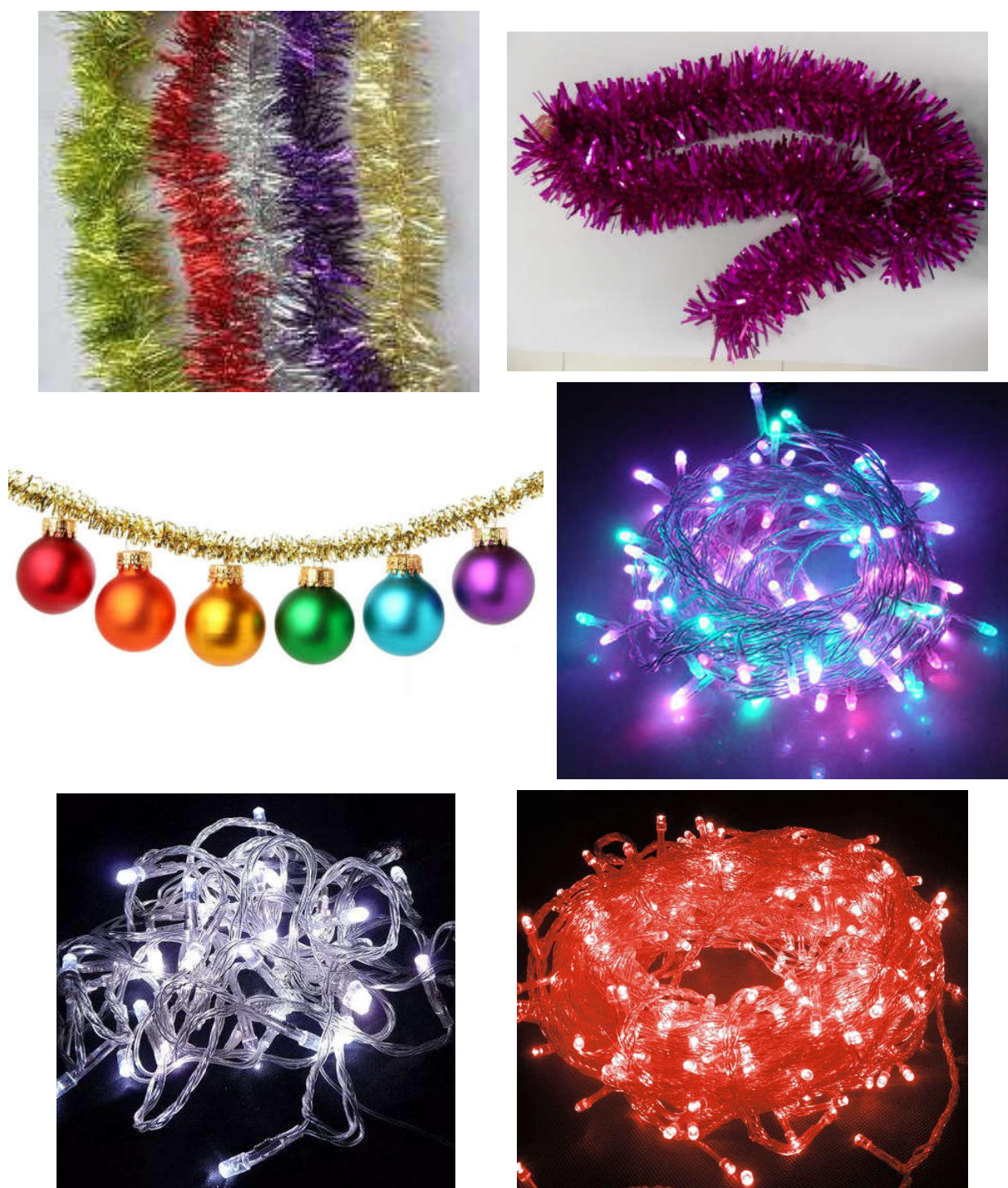
⁹ Information, ideas and pictures shared by Roxana Cziker

conditions. This could sometimes impair the child's ability to see the stimulus clearly

- When training a child to use vision it is better to focus on visual cues only and avoid using auditory or tactile clues
- You can also focus on multisensory stimulation. In this case you can use objects with two characteristics: visual and auditory – light and sound, or colour and sound – **Picture 5**
- You can use objects and toys to develop eye-hand coordination – this is the ability to manipulate and play with an object under visual control – **Picture 6**
- You can also use neon fluorescent toys or object under UV (blue light) in a dark room – **Picture 7**
- Avoid using toys with many and irrelevant details
- Use a high contrasting background when presenting objects; avoid rooms with many objects or stimuli which can distract the child's visual attention from the targeted stimulus
- Find out which is the small size of object that the child can visually react well too
- Use objects with two characteristics both visual and tactile in case the level of vision is very low – **Picture 8**
- Glue or sew different textures on the children's clothes in order to stimulate touching, focusing and eye-hand coordination – **Picture 9**
- Give the child enough time to react to the presented object. Do not move it too often or too rapidly in front of the child's eyes
- Use a simple verbal description when you introduce an object
- If the object is too complex and if it has too many details, you can hide parts of it to make it easier



Picture 3. Simple and familiar objects presented on different backgrounds and from different perspectives.



Picture 4. Christmas tree examples of toys to use both in light and dark conditions.



Picture 5. Examples of toys with music and light which can be used both in light and dark conditions.



Picture 6. Examples of toys and activities for development of eye-hand coordination.

330



Picture 9. Ideas of materials that can be sewed on the child's T-shirt for both visual and tactile stimulation.

4. EXAMPLE OF RESOURCES – SIMPLE BOOKS FOR CHILDREN WITH CVI¹⁰

Children with CVI usually respond best to materials that are simple and not overly cluttered or visually complex. This book uses a single shape (star) with slight variations in colour, placement, and number. The hope is that by reducing the complexity, children with severe CVI will look for a longer period of time and will show greater interest in books.



Picture 10. Position of stars on the book.

- Before creating a book, observe how the child uses his or her vision and determine which colours are preferred
- Chose shiny paper for the stars and black construction paper for the pages
- Place one star of the preferred colour on the first page of the book and make each page slightly more complex, by changing the colour of the star, changing where it appears on the page and changing the number of stars shown – **Picture 10**
- Ask the child to look or point to the star and note whether or not the child appears to be looking at it

¹⁰ Idea and photographs: Allen B. (n.d.). Retrieved from www.pathstoliteracy.org

- Turn the page together with the child, you might use page separators to allow more active participation of the child

Variations:

- There are many variations that can be made with different shapes, different numbers of items, different colours, etc.
- As the student becomes familiar with this book, introduce slightly more complex books.
- Add words in print and braille



5. EXAMPLE OF RESOURCES – CREATING TACTILE BOOKS OR BOOKS WITH OBJECTS WITH CHILDREN WITH CVI¹¹

Experience stories, tactile books and object books all provide an entrance to the world of literacy, together with using concrete materials relating to the child's own life. In general, the language used is simple and based on key vocabulary from within the child's own experience. Pages usually have braille, print and real objects or partial objects attached to each page. It is often helpful to use a three-ring binder, as pages tend to be thick. For children with CVI, real objects from their own life are much easier to understand and relate to those pictures.

Tips for making tactile/object books:

When choosing tactile items to attach to a page, be sure to think about it from the child's perspective. For a child with CVI and it is important to select real items or pieces of the item that a child has touched as part of the experience. In other words, a raised line drawing to represent a tree is less meaningful than a piece of bark. A handful of grass may be a better way to represent being outside. Similarly, a matchbox car is visually similar to a real car, but may have no meaning to a child



Picture 11. Photograph: Demchak, M. A. (n.d.). Retrieved from www.pathstoliteracy.org

¹¹ Paths to literacy (n.d.). *Language experience books*. Retrieved from <http://www.pathstoliteracy.org/language-experience-books>
Perkins (n.d.). *Brushing teeth*. Retrieved from <http://www.perkinselearning.org/videos/teachable-moment/brushing-teeth>

with CVI. A better way to represent a car may be the buckle of a seat belt or part of a car seat.

Include print or braille on every page. This is important for other people who are reading the book and will help to give the child continued exposure. It will also guide the person who reads with the child to use the same key words and names for object, creating continuity for the child.



Picture 12. Photographs: Padhye I. (n.d.). Retrieved from www.perkinselearning.org

Have the child participate as much as possible in the creation of the book, including choosing the topic, telling the story, selecting the items to "illustrate" it and attaching the items to the pages.

Strategies for making CVI-friendly tactile or object books:

- Provide a plain, contrasting background
- Pick items in favourite or bright colour, which serves as a visual anchor
- Choose one or two items to complexity is minimised
- Introduce items one at a time, to avoid overloading senses
- Talk about the salient features of the items with the child

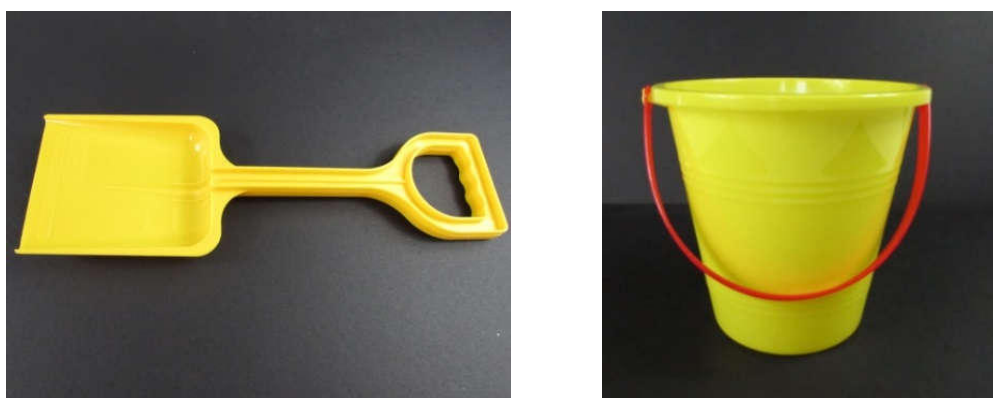
6. EXAMPLE OF RESOURCES – MATCHING OBJECTS AND PICTURES¹²

An important aspect of literacy is the understanding that pictures, symbols, etc. are a representation of the real world and convey meaning. To support a child in developing this skill you can create a simple book with a few pages and together with the child match the picture in the book with the real object.

For a child with CVI it is important that you start with a simple object in a single, clear colour (e.g. a yellow bucket) and provide it on a plain, contrasting background, both the picture in the book and the real object.

Level 1: Match picture and object

A picture represents a real object (abstraction skills, two-dimensional looking) – **Picture 13.**



Picture 13. (Photographs: Positive Eye Ltd)

As the child looks at a target in the picture pass them the real object to support understanding. Explore the object and picture together, talk about salient features, functions and make sounds with the object.

¹² <http://www.positiveeye.co.uk/shared-ideas/>

Level 2: Match picture and object seen from different perspectives

An object can look different from different perspectives, but it is still the same object (form constancy, directions) – **Picture 14.**



Picture 14. (Photographs: Judith Cederhag)

Supply several pictures of an object taken from different perspectives. Help the child to match the picture and the object, and to hold the object in the same position as on the picture.

7. PRE-READING SKILLS¹³

7.1. PRINT MOTIVATION

- A child's interest in and enjoyment of books and reading
- Books need to be appropriately adapted using CVI friendly strategies to engage the child in wanting to look and to read

Aim: To ensure the child has access to books which motivate them to look, read and enjoy the story.

- Make sure book reading time is fun
- Keep reading time short
- Read frequently during the day. Include reading times within specific daily routines
- Use a sloped board to raise materials. Avoid laying materials flat on a tray or table
- Create books with the child about their daily experiences and then include a reading slot at these times
- Create simple books made of a few pages, using the child's favourite items (e.g. cup, ball or book)
- Mount clear well contrasting images on black matt background using stiff card. One image per page
- Encourage the child to turn the pages of their favourite book and 'retell' the story in their own words
- Use non-novel images that the child recognises, is familiar with and which are predictable
- Use Tablet Technology to make individualised books related and meaningful to the child's life

¹³ Reference: Sheline, D. (n.d.). *Strategies to See*. Retrieved from <https://strategytosee.com/>

- Allow time for the child to process what he/she is seeing before turning to the next page

7.2. PRINT AWARENESS¹⁴

Understands:

- Print on a page represents words that are spoken
- Book skills: how to hold a book and how to follow words on a page

Strategies:

- Explore the page of the book, find the word or the image
- Find the top and bottom of the page
- Find the top and bottom of the picture
- Make sure the child's preferred print specification reflect their individual need following assessment
- Start with a single word positioned in the same location on each page to aid predictability (e.g. ball)
- Encourage the child to point to the word with their finger
- Say the word as they point to it
- Point out the initial letter sound 'b'
- Encourage the child to turn the pages of the book. Use 'page separators' (see picture below) to make the pages easier to turn – **Picture 15**
- Find a specific image located on each page and link it to the real object
- Talk about the object, the image, the critical features, colour, shape and size



Picture 15. Example “page separators”

¹⁴ Reference: Sheline, D. (n.d.). *Strategies to See*. Retrieved from <https://strategytosee.com/>

7.3. STRATEGIES¹⁵

Vocabulary

The child needs to know the names of things, objects, feelings, concepts and ideas.

Strategies

- Label common everyday objects that the child comes into contact with each day (e.g. bag, cup, book or pencil)
- Label areas of the classroom, provide an object basket with objects and labels relating to each area
- Encourage them to take the object and label to the area
- Build in opportunities to point out/say/use the words as part of their daily routines
- Talk about letter sounds at every opportunity during the day
- Develop understanding of the critical features of objects. Add word label to object and label/talk about its critical features
- Build concepts as part of the child's emerging literacy skills. Aim to gradually build concept formation in the following four steps

Four steps of concept development

1. Being aware of the item
 2. Having a desire to interact with the item
 3. Being able to label the item
 4. Classify other items with similar characteristics that relate to the item
- Build understanding of other spoons, cups, where stored, material made of, use, purposes, size, shape, weight, length, etc.
 - Make concept bags and boxes for key concepts

¹⁵ Reference: Sheline, D. (n.d.). *Strategies to See*. Retrieved from <https://strategytosee.com/>

8. PRE-READING STRATEGIES AND TIPS FOR CHILDREN WITH CVI¹⁶

Pre-reading skills generally include, but are not limited to, the following:

- Print Motivation
- Direction
- Motor Skills
- Print Awareness
- Rhyming and Phonological
- Awareness
- Letter Knowledge
- Matching
- Narrative Skills
- Vocabulary

a. Print motivation may be one of the most important pre-reading skills to consider

- Make sure book reading time is fun
- Use strategies to ensure books are “CVI friendly”
- Keep reading time short, but frequent
- Create books that are predictable, with something recognisable appearing on every page
- Use Tablet Technology to create custom books of high interest to the child

¹⁶ Diane Sheline, M.Ed. Diane Sheline, StrategyToSee.com Strategies for Pre-Readers Pre-Reading Skills. <http://www.perkins.org/assets/downloads/webinars/presentation/strategies-for-improving-literacy.pdf>

- b. Students will need to:
 - Understand that print on a page represents words that are spoken
 - Know how to follow words on a page
 - Know how to hold a book
- c. Phonological awareness is the understanding that words are made up of smaller sounds.
- d. Each letter is different from others. This stage is important for children with CVI to recognise and name all letters and know that each has a different sound.
- e. Experiences in matching shapes, letters and numbers. Children with CVI need to understand the concepts of “same” and “different”.
- f. Students with CVI will need experience in telling and understanding stories. They need to be able to describe things and events.
- g. Names of things, feelings, concepts and ideas
 - Label common, everyday objects the student comes in contact with during routines
 - Discuss salient features of all objects
 - Discuss salient feature of letters and words representing objects
 - Point out words that the student comes in contact with during naturally occurring routines

9. EXAMPLE OF RESOURCES – LITERACY STRATEGIES FOR CHILDREN AND YOUNG PEOPLE WITH CVI

Matching Bucket¹⁷



You will need:

- 1 bucket (preferably a bright coloured one, this is a metal one from IKEA)
- A selection of objects from around the environment
- A set of tickets naming the objects (laminated if preferred)
- Velcro to attach tickets to outside of bucket
- Shapes to decorate the bucket

¹⁷ Idea and Photographs shared by Positive Eye Ltd

The resource is quick to make and can involve the child

- Step 1: Decorate the bucket
- Step 2: Add your objects to the bucket
- Step 3: Make your tickets and Velcro to the outside of the bucket

Learning and development suggestions

- **Match textures**

Velcro textures to the outside and place matching texture in bucket for child to find and explore.

- **Match shapes**

Velcro textures to the outside and place matching shape in bucket for child to find and explore.

- **Match objects**

Velcro textures to the outside and place matching objects in bucket for child to find and explore.

- **Match sounds**

Velcro objects/textures with different sounds to the outside and place matching sound in bucket for child to find and recognise

- **Match initial letter sounds**

Child to match initial letter sound on each ticket to correct object in bucket

- **Match words**

Child to match word on each ticket to correct object in bucket

- **Collect objects**

Collect objects beginning with particular letter

Collect objects with two attributes or three attributes

Collect natural objects (e.g. made of metal, wood, collect different shaped leaves)

- **Count objects**

Place number tickets on Velcro spots around bucket. Choose a number and count the correct amount of objects, perhaps with a particular initial letter sound into the bucket, from a selection placed on a tray.

- **Capacity**

Fill the bucket with water; find out how heavy the bucket is when it is full.

Place each object in the water find out which float and which sink.

Make a chart on a magnetic board of those that sink and those that float.

Fill the bucket with sand and make a massive sandcastle!

Make a castle using the bucket to make sandcastle turrets.

- **Musical instrument**

Turn the bucket upside down and play it is a drum with hands, with wooden spoons! Make different sounds from loud banging to quiet tapping.

- **Make up a story or a poem about the bucket**

Include the child in thinking about the story, what happened one Saturday when Dad wanted his car washing and the bucket had a hole in it, what happened next?

10. EXAMPLE OF RESOURCES – STORY BOARD FOR CHILDREN WITH CVI¹⁸

This is one example of a story presented in a tactile book. The great advantage of these books is that they can be re-used and you can have multiple story "bags".



This story board was created for a classroom with students who have severe/profound disabilities. The teacher who produced this story board has three students in the classroom with Cerebral Visual Impairment (CVI) and one student with a traumatic brain injury (TBI), who is currently being exposed to braille and tactile materials.

Materials:

- Make the board in black in order to make it easier to "see" or localise toward when the story is told for the students with CVI and accessible through use of tactile materials for the other student

Procedure:

The story was adapted from the "Five Pretty Flowers" poem.

Say: "Look at what is on our board today. We have five spring flowers. Let's count them. One, two, three, four, five! Five spring flowers!"

Do: Have the student count the flowers. Use either verbal prompting, physical prompting, hand under hand or hand over hand depending on level of independence.

¹⁸ Fitch, T. (n.d.). *Story board for CVI or braille learners*. Retrieved from www.pathstoliteracy.org

Say: “Five spring flowers all in a row. The first one said, ‘We need rain to grow!’”. “The second one said, ‘Oh, my! We need water!’”

Do: ADD RAIN DROPS CARD TO BOARD – Have students do this part or help them touch once placed on the board. Describe if tactual and talk about each item and how it feels. Talk about what the real thing also feels like.

Say: “And, the third one said, ‘Yes, it is getting hotter!’”

Do: ADD SUN TO BOARD

Say: “And, the fourth one said, ‘I see clouds in the sky!’”

Do: ADD CLOUD TO BOARD

Say: “And, the fifth one said, ‘Mmm, I wonder why?’” “And, boom went the thunder (Do: CLAP YOUR HANDS) and crack went the lightening.”

Do: ADD LIGHTENING TO BOARD

Say: “The spring time storm was really frightening! But, the flowers weren’t worried. No, no, no! The rain helped them to grow, grow, grow!”
The End.

Variations: If you were only doing this for a student accessing by braille methods, you may want to use other textured materials for the story board pieces.

11. VISUAL PERCEPTUAL SKILLS REQUIRED FOR LITERACY

The child may need training in the area of visual perception skills to help them to use their vision more efficiently.

Visual perception is divided into subgroups:

1. **Visual spatial relations** – position in space and spatial relations are an important perceptual ability for the discrimination of letters having similar form but different positions (e.g. p and q, d and b). This is also important to distinguish the sequence of letters in a word or words in a sentence.
2. **Visual form constancy** – to turn and rotate an object in our minds and to understand they remain the same despite changes in its presentation such as size and direction. The ability to perceive shape and size is necessary if the child is to recognize known words in different colours, sizes, typefaces and to recognise words in unfamiliar contexts. – **Picture 16.**
3. **Visual sequential memory** - a child's ability to remember a number of items, letters, numbers or shapes in series
4. **Figure background perception** – the ability to select a symbol, figure, word or phrase from its background. This is necessary for word attack skills, reading ability and research techniques.
5. **Visual closure** - The ability to recognise an object with few visual clues without seeing all of the object



Picture 16. Example.
Visual form Constancy –

6. Hand-eye co-ordination - the ability to coordinate information received through the eyes to make the hands act (e.g. catching a ball). Hand-eye coordination is essential for both reading and writing.

Child requires scanning, tracking and locating skills to read fluently

It is possible to find pedagogical material for training the visual perception in many different sets.

The internet provides many different examples. Search for Visual Perception Skills and Training – **Picture 17**.

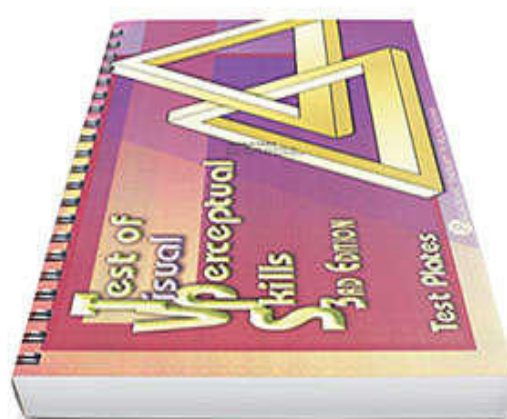
GUIDING CHILDREN WITH CVI

Its important children function independently. Therefore we have to think carefully about their needs to develop literacy.

Look before you leap

Always ask yourself:

- Why
- What is the defect in their visual functions
- What makes sense to adjust
- Time investment >< added value
- Not everything is customisable
- Stay realistic
- Evaluate: children evolve, they learn to deal with their problems and develop their own strategies



Picture 17. Test of Visual Perceptual Skills. This test is adapted for test persons with a slight vision loss, normal intelligence and endurance.

12. EXAMPLE OF RESOURCES – SENSORY STORIES¹⁹

Sensory Stories are designed to be read to a child who has a visual impairment or has problems with processing visual information. The story is built around all kinds of sensory activities (e.g. *seeing, hearing, feeling, smelling and tasting*) which support the storyline. Anyone can read the story to the child: a parent, a sibling, a teacher, an aide or a therapist. If the child is able to read, the child may read the story alone with assistance provided the appropriate strategies are employed. Older children can make their own story and tell it or they can write a story.

The story of “Princess Rose”

It's a story about a blind, sweet, nice smelling, soft princess who wants to meet a husband. Her parents have many candidates, but she want to find someone on her own. So she starts her search and finds out that opposites attract.



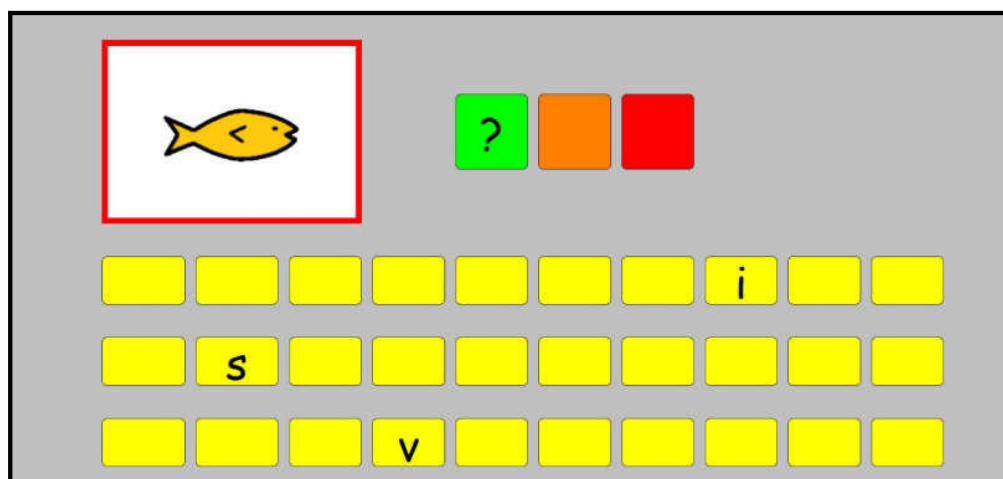
¹⁹ Ressource shared by Centrum Ganspoel, Belgium.

The story of a "little mouse"

It's a story about a little mouse who wants a nice place to live. Nothing is good enough, until she meets another mouse.

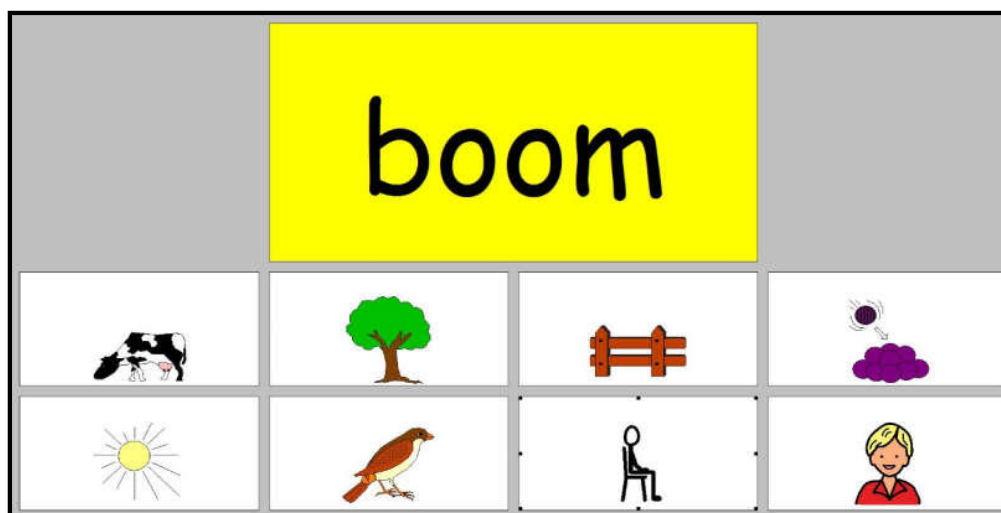


13. EXAMPLE OF RESOURCES FOR CHILDREN WITH CVI²⁰



Picture 18. Printscreen Mind Express exercise writing – Picture PSC-symbol.

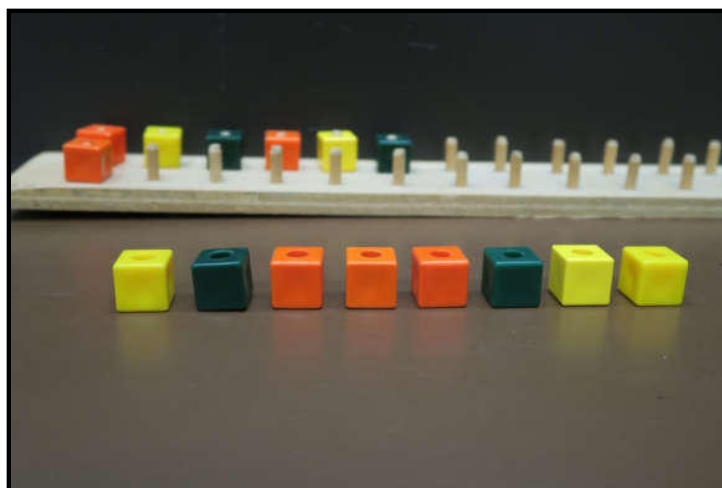
The more words the child learns, the more letters appear on the screen keyboard.



Picture 19. Printscreen Mind Express exercise reading – Pictures Beta symbols / PSC-symbol
Working with a touch screen.

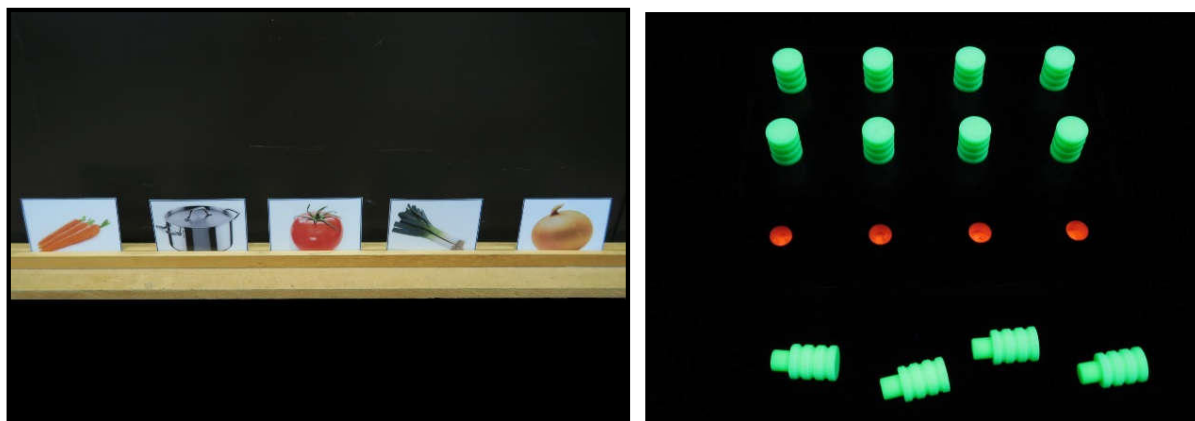
²⁰ Resource shared by the Centrum Ganspoel, Belgium.

14. EXAMPLE OF RESOURCES FOR CHILDREN WITH CVI IN PRE-READING STAGE – PRACTICE LOOKING STRATEGY²¹

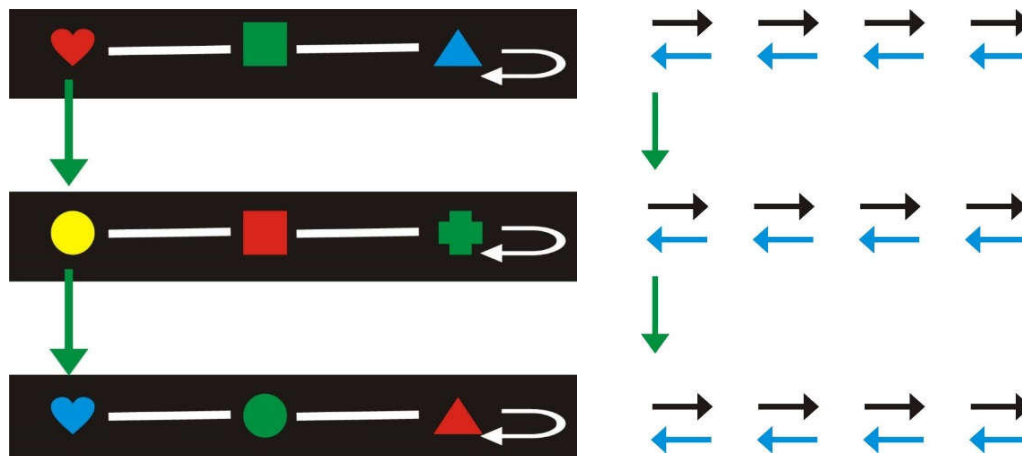


Picture 20. Looking strategy: scan left to right, from top to bottom, changing reading line.

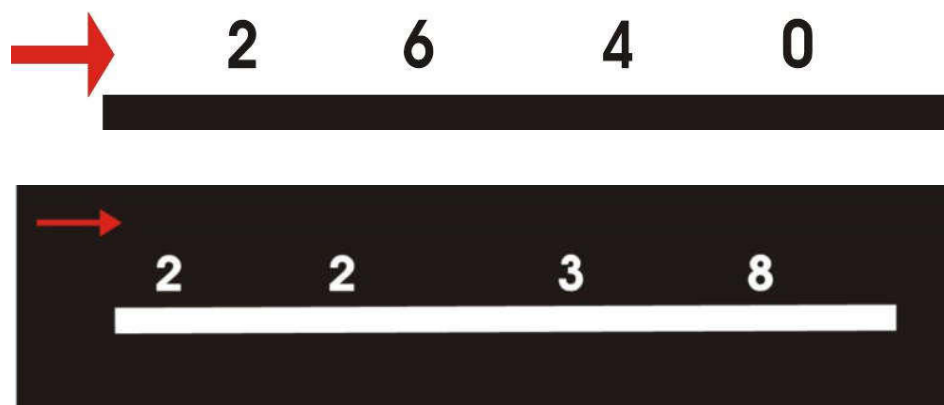
²¹ Resource shared by the Centrum Ganspoel, Belgium.



Picture 21. Example of organised strategy – place pictures in a series from left to right. Place pegs in an organised manner from left to right in rows.



Picture 22. Example of organised strategy of looking.



15. EXAMPLE OF RESOURCES FOR CHILDREN WITH CVI IN PRE-READING STAGE – RECOGNISE LOGO ON TV AND RADIO CHANNELS²²



Picture 23. Reference photos: labels from TV channels

Exercise to recognise the logo of different TV and radio channels.

Goal:

- To match and name the different logos
- Recognise the logos, so that older children with disabilities can personalise a TV channel choice

²² Resource shared by the Centrum Ganspoel, Belgium.

16. EXAMPLE OF RESOURCES FOR CHILDREN WITH CVI IN PRE-READING STAGE – SELECT MUSIC BY CHOOSING A PICTURE²³



Recognise photos. Photos refer to songs. Child presses the button of the photo which corresponds to the song he/she wants to listen.

²³ Resource shared by the Centrum Ganspoel, Belgium.

Part 15: Beginning readers

1. VISUAL AND MOTOR PRE-REQUISITES FOR CHILDREN WITH CVI AS BEGINNING READERS²⁴

Keep in mind the following tips and key words for visual and motor pre-requisites for children with CVI – beginning readers:

- See visual information clearly
- Switch the eyes from one object to another
- Adjust vision between near and distance stimuli
- Demonstrate a good level of visual attention
- Understand the difference between different stimuli
- Separate stimuli from its background

As a beginning reader, children with CVI need some visual and motor pre-requisites to support their development of literacy.

-
- | | |
|------------------------|---|
| Visual fixation | <ul style="list-style-type: none">• Fixation / detection an object within the environment, a picture in a book or page, a word in a text, etc.• Detection of particular position of a stimulus, finding details in an image or different subject matters – mathematics, biology and geography• Copying from the whiteboard or book, reading efficiently and doing well sports (2, 6, 8) |
|------------------------|---|
-

²⁴ Cziker, R.E. (2016). CVI in practice: strategies to develop visual-spatial skills for writing letters. Retrieved from <http://www.pathstoliteracy.org/users/roxana-cziker>

Saccades	<ul style="list-style-type: none"> • Small eye movements from one object to another, from one picture to another, from one word to another or from one line of the text to another • Contributes to assuring reading fluency, looking at a picture in a book (4, 5)
Visual field	<ul style="list-style-type: none"> • Scan in a small space, to visually search and scan the entire page, spatial localisation of objects and images, judging object's position, etc. (6)
Visual acuity	<ul style="list-style-type: none"> • Discriminate and identify single forms, letters or numbers or to process text materials (reading acuity). It is influenced by the eye movements (e.g. saccades, fixation, etc.) and memory • It is necessary for reading and writing ability, for seeing both distance and near objects and visual scenes
Visual attention	<ul style="list-style-type: none"> • Ability to focus on specific elements in the visual scene and avoid distractor factors <ol style="list-style-type: none"> 1. Selective attention and shifting – focusing on single relevant stimulus while ignoring irrelevant or distracting stimuli 2. Sustained attention – maintenance of focus attention for a certain period of time

	<p>3. Divided attention – focusing on more than one relevant stimulus or action at one time (1)</p>
Visual strategy and searching	<ul style="list-style-type: none"> • Find, in an organised manner, a single definite target among distractors (other elements), which either pops out in the field on non-targets or distractors • Necessary in reading and writing, image matching (e.g. finding the school in the neighborhood, orientation in a group of people, finding the favourite sweet in a box, etc.) (1, 6)
Visual discrimination	<ul style="list-style-type: none"> • Make the difference between objects and forms • Make the difference between identical and different features (pattern, colour or size). This is related with shifting gaze from one image to another, visual field, viewing strategy and scanning • Make the difference between different letters (e.g. b and d, p and p, etc.) between similar beginnings or endings (1, 3)
Visual memory	<ul style="list-style-type: none"> • Remember visual details, visual experiences (e.g. remember, identify, recognise and put together as letters in words)
Eye-hand coordination	<ul style="list-style-type: none"> • Coordinate information received from the eyes to control, guide and direct the hands in the accomplishment of a given task (e.g. handwriting or catching a ball) (1)

Figure-ground discrimination

- Separate an object or shape from the background where it is placed. Find specific information on a page or perception of an image against the distracting background
- Locate and identify shapes, objects embedded in a busy visual background – selection between relevant and irrelevant information in the environment
- The difficulty arises in being able to block distractors (other stimuli around): increase the time to do the classroom tasks from copying from the whiteboard, to find a certain colour pencil, etc. (1, 3)

Visual sequencing

- Establish the order of symbols, words or images (e.g. sometimes the child misses this function and they also skip lines when reading)
 - Difficulty with visual sequencing causes confusions with similar words (of/for, saw/was, etc.). It also affects auditory processing, with sounds being miss-sequenced. It can also affect sentence construction and planning skills for essays and other written work
 - Difficulty with arranging pictures of events in sequence, in copying the alphabet or numbers in the correct order or in seeing the order of letters in words (5)
-

**Visual-spatial
relationship**

- Processing the spatial properties such as position, distance, depth and direction (horizontal, vertical and straight ahead) and the spatial relation which is established between different stimuli in scenes both three dimensional and 2D pictures (1)
 - Understand letters as a combination of different elements
-

References:

1. Ekkens, I. E. (2001). *Manual and justification for the IN-Sight tool for visual perception in children with vision impairment*. The Netherlands. Royal Dutch Vision.
2. <http://www.edublox.com/visual-sequencing.htm>
3. Kurtz, L.A. (2006). *Visual perception problems in children with ADHD, autism and other learning disabilities: a guide for parents and professionals*. London: Jessica Kingsley Publisher.
4. Purves, D., Augustine, G. J., Fitzpatrick, D., Katz, L. C., et al. (2011). *Neuroscience*. Sinauer Associates.
5. Willings, C. (n.d.). *Teaching students with visual impairments: oculomotor skills*. Retrieved from teachingvisuallyimpaired.com
6. www.merrian-webster.com/dictionary/saccades
7. Zihl, J. (2011). *Rehabilitation of cerebral visual disorders* (2nd edt.). United Kingdom: Psychology Press.
8. Zihl, J., & Dutton, G. N. (2015). *Cerebral visual impairment in children*. Wien: Springer.

2. BEGINNING READERS – TOP TIPS AND STRATEGIES

Keep in mind the following tips and key words for developing literacy – beginning reading in children with cerebral visual impairment (CVI):

- Multisensory approach
- Multiple experiences both indoor and outdoor
- Different and diverse materials and strategies
- Use of real objects and simple pictures
- Basic concept of a book and print
- Use of simple and organised text and information on the page
- Use of picture support
- Carefully controlled text
- Repetitive patterns
- Controlled, repeated vocabulary
- Language used in everyday life
- Use of adapted print to meet need of child
- Wide letter spacing
- Familiar concepts
- Limited text on a page

The **Stages of Reading and Writing Development** is a continuum process that explains how students progress as readers and the strategies that they need for writing letters, making the connection amongst letters and composing words. These stages are based on the students' experience and not on their age or grade level. These stages represent key factors in the learning process. A multisensory approach and multiple experiences support the development of literacy in children.

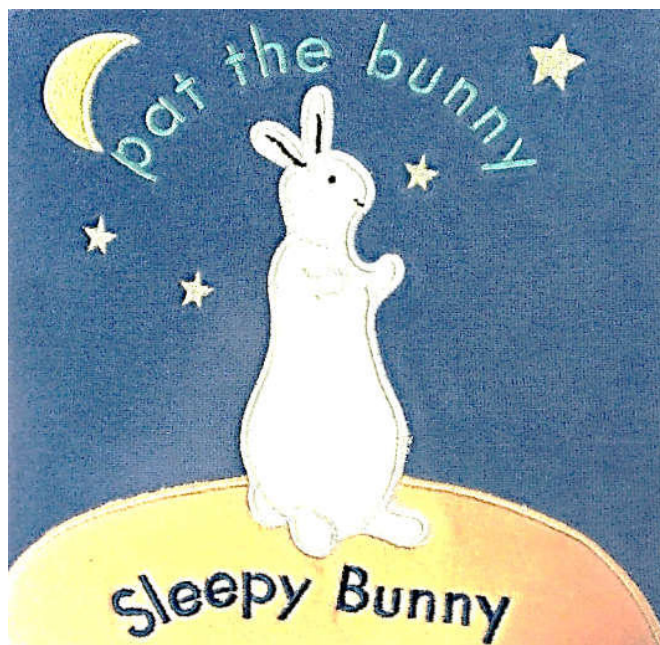
Knowing these stages is helpful when developing materials for specific types of readers.

According to the classification of the National Centre on Deaf-Blindness²⁵, the beginning reader could be framed within the following categories:

Stage	Description
Emergent Literacy	Understand that text and pictures convey meaning, begin to recognize familiar environmental print and their name, may write some letters, etc.
Developing Literacy	Awareness that words are made of different sounds, decode words, write simple sentences, etc.

²⁵ Adapted from <http://literacy.nationaldb.org>

Stage	Description
Emergent Literacy	Aspiring readers are just beginning to grasp the basic concepts of book and print. They are acquiring a command of the alphabet with the ability to recognise and name upper- and lowercase letters. They are also developing many phonological awareness skills, such as recognising phonemes, syllables and rhyme. For children with multiple disabilities and CVI the idea of the basic concept of the book could be framed around the idea of simple objects or simple pictures, in line with their level of development.
Developing Literacy	Awareness that words are made of different sounds, decodes words, writes simple sentences, etc.



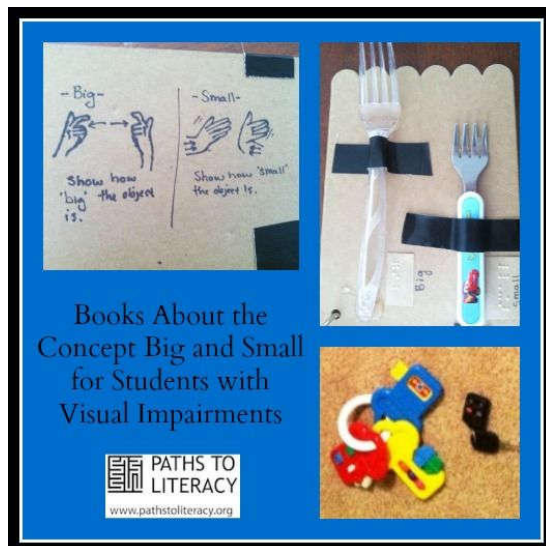
Picture 24. Examples of books with simple pictures and words.

Pictures shared by Roxana Cziker



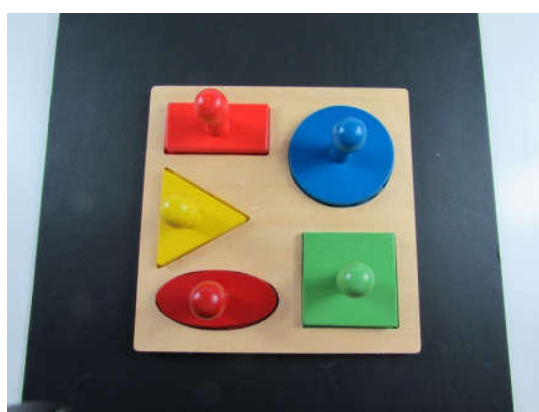
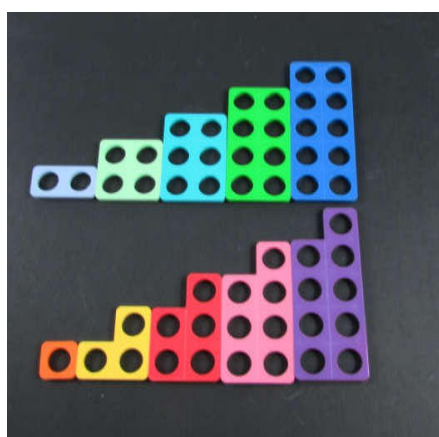
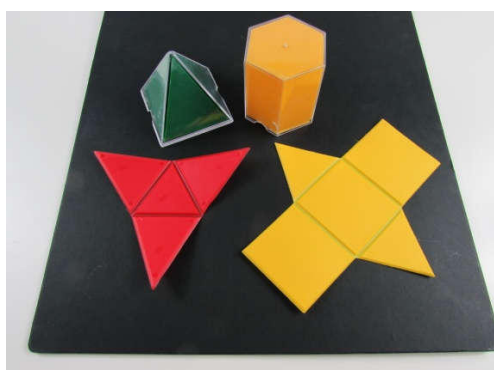
Picture 25. Examples of books with simple pictures and words.

Pictures shared by Roxana Cziker



Picture 26. Examples of books with simple objects for beginning readers – children with CVI.

3. STRATEGIES FOR CHILDREN AND YOUNG PEOPLE WITH CVI – POSITION LARGE, HIGH CONTRASTING, SIMPLE OBJECTS AND ACTIVITIES ON A PLAIN BACKGROUND²⁶



²⁶ Photographs on this page are shared by Positive Eye Ltd.

4. STRATEGIES FOR CHILDREN WITH CVI – CHARACTERISTICS FOR PICTURES AND GRAPHICS²⁷

Keep in mind the following tips and key words for pictures and graphics characteristics for children with CVI – beginning readers:

- Simple and clear pictures
- Clear, bright colours
- Good contrast and simple background
- Different perspectives, different viewpoints of objects in pictures
- Appropriate size
- Few and simple pictures on page

What kind of pictures and drawings could the children with CVI as beginning readers use?

- It is recommended to use simple and single pictures on the page on a high contrasting background – **Picture 27**
- Increase clarity of pictures by adding black outlines to simple pictures – **Picture 28**
- It is recommended to remove unnecessary information – irrelevant details, extra illustrations graphics from page
- Present pictures both in print, on the iPad and on the computer to offer the child different access options
- Present animated pictures on the iPad/tablet, e.g. pictures that are moving on different areas of the screen
- Use codes of colours and teach the child how to use the colours in different drawings (plastic sticks in different colours and big colour dots drawn on the paper etc.)

²⁷ Information, text and pictures shared by Roxana CzikerS

- Provide verbal descriptions of pictures / graphics / drawings that you present to the child; repeat, if it is necessary, the same information several times to develop phonetic hearing, sound discrimination and make the link between pictures and words or sign language
- Provide real objects to reinforce understanding of pictures – **Picture 29**
- Use real objects to establish connection to words



- Let the child play with colour pencils – scribble in order to develop fine motor skills and fine movement of the hand on paper
- Observe and note the level of complexity the child is able to tolerate in a picture – simple pictures or complex and detailed pictures – **Picture 30**
- Observe and note if the child is able to find a particular picture in a complex image with many details
- Observe and note which is the most comfortable area of the page for the child to see pictures – left, right, central, top, bottom
- Identify, observe and note if the child is able to recognise familiar objects in pictures
- Use pictures in communication with children with CVI if they are not able to use verbal communication
- Place the picture in a box or outline to enable the child to notice it better in different areas of the page – left, right, top, bottom, etc. – **Picture 31**

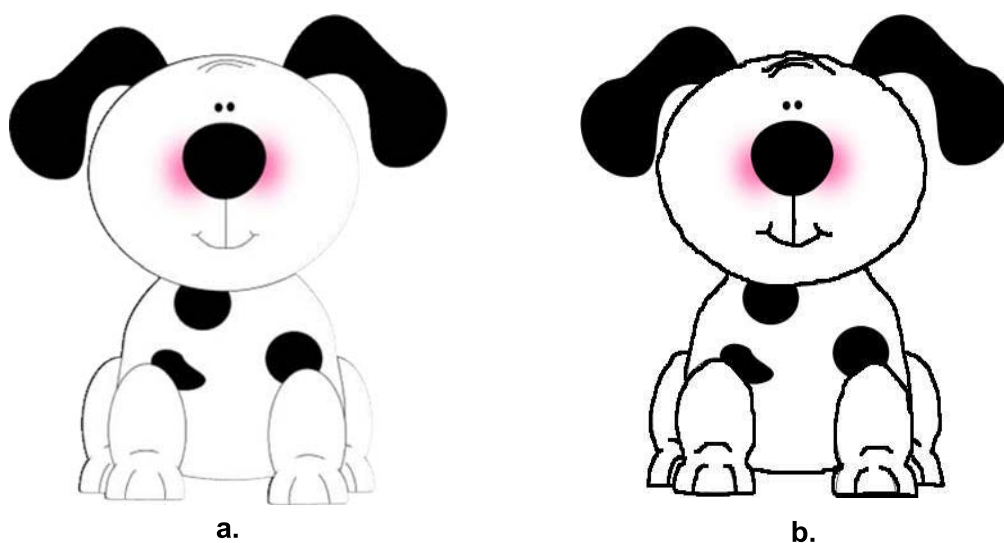
- Present the pictures from different views, perspectives – **Picture 32**
- Use black and white or red and black patterns on paper in order to stimulate the vision and increase the level of visual attention of the child with CVI and multiple disabilities / complex disorders – **Picture 33**
- Draw with the child, do different drawings to help them to practice their fine motor skills
- Prepare funny 3D books for children and keep in mind to have a good contrast for instance black background, which can be soft or hard materials. Position WORDS with OBJECTS in books (use Velcro to remove, handle and then replace)
- Try 2D pictures in books: try **squashing** an object then insert it into a book, then create the shape around it **leaving only the shape** e.g. leaf, flower using a **raised outline** will help to identify the shape (try wiki-stiks or similar); **words** should be alongside **the 2D pictures**

What **motivates** the pupil to **promote success**!

- **music** - words from a song, instruments,
- **transport** - trains, buses
- **fashion** - shoes
- **sport** - football, rugby, tennis
- **holidays** - countries, places, cities
- **animals** - zoo, jungle
- **outdoor learning** - park, beach, woods



Picture 27. Presentation of pictures one at a time on high contrast.



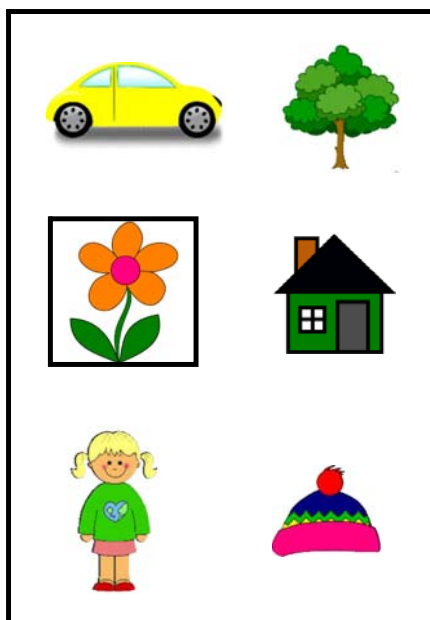
Picture 28. Increase clarity of pictures by adding black outline to simple pictures. a). Picture in simple outline. b). Picture with increased outline.
Adaptation of pictures shared by Roxana Cziker



Picture 29. Presentation of concrete objects and pictures.
a) Concrete object. b) Picture.

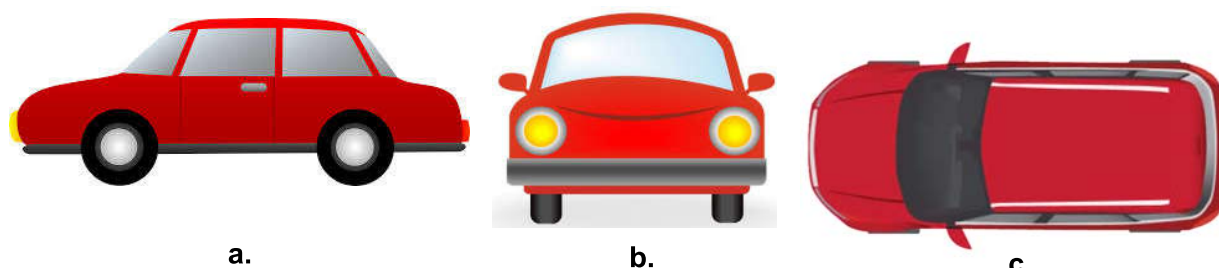


Picture 30. Examples of simple and complex pictures in book.
a) Simple picture and good contrast.
b) Complex picture with low level of contrast and many details.



Picture 31. Place the picture in an outline or frame in different corners of the page in order to enable the child to find it easier.

Adaptation and ideas of pictures shared by Roxana Cziker



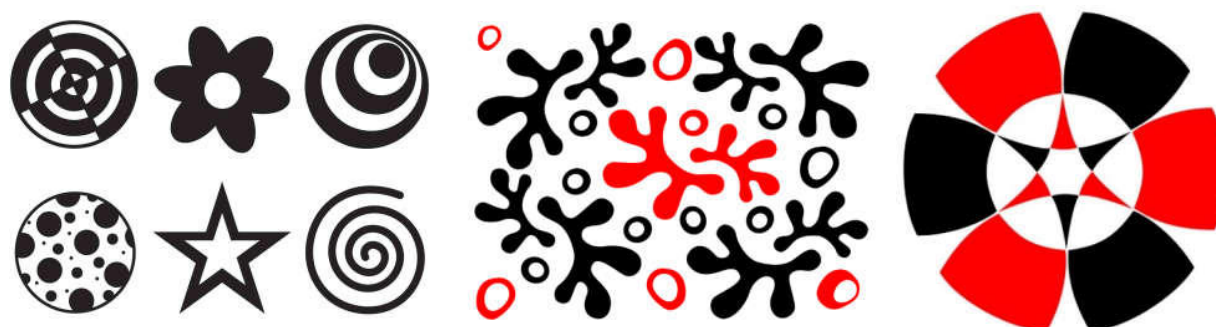
a.

b.

c.

Picture 32. Presentation of pictures from different perspectives.

- a) Car – lateral view
- b) Car – front view
- c) Car – view from above



Picture 33. Black and white and black and red patterns on paper suitable for visual stimulation when working with children with multiple disability and CVI.

5. STRATEGIES FOR CHILDREN WITH CVI – CHARACTERISTICS FOR LETTERS AND TEXT

Keep in mind the following tips and key words for letters, words and text characteristics for children with CVI – beginning readers:

- Appropriate font
- Appropriate print size
- Consider the amount of information on the page
- Consider the space between words and the lines of text
- Bold words
- Use a ruler or a colour strip to follow the text

How we can develop the first stage of reading – identifying, discriminating and reading / recognising letters, words and text?

- Find the most appropriate font – **Picture 34**
- Find the most appropriate print size – **Picture 35**
- Find the right place on the page where the letters, words or text could be placed to enable the child to see them the best
- Block some elements to emphasise some details and help the child to focus their visual attention:
 - Frame letters, text – **Picture 36**
 - Mark the targeted letter, word or text with markers or bright line markers – **Picture 37**
- Create more “white space” on the page in order to reduce the amount of information and to enable the child to find the targeted letter, word or text more easily

- Cut out surplus text from the page, which is not necessary to the learning objective
- Block off excess text with white paper and photocopy the new version
- Adapt the page of text (re-format the text on a word document)
- Fold the page in order to emphasise part of the text on the page
- Use pens or highlighters to draw special attention to specific key features. Use this technique for: reading words, finding a particular letter, finding new words and high frequency of words
- Increase the space between words or line of the text – **Picture 38**
- Avoid using italics and underlining – **Picture 39**
- Highlight headings or titles in bold
- Use a ruler or a colour stripe as additional support to read each line of the text, especially when children have difficulty with visual attention, nystagmus, etc.
- Add a thicker black margin line to aid location of the beginning of the line of text
- Observe and note the area of the page where the child can focus and find the words and letters more easily
- Practice spatial configuration by presenting dots in different positions. Ask the child to connect the dots by tracing a line by following a particular model – **Picture 40**
- If the children cannot read text in print, they can use computer for reading text or software with a synthetic voice
- Present models of letters made from different materials and make the child aware about different elements which compose the letter – **Picture 41**
- Practice fine-motor skills for writing letters using coloured beads – **Picture 42**

- Practice the letter by writing each component separately and then present the letter to the child with all components. Ask the child to copy the model and write different letters – **Picture 43**
- Associate pictures with letters / words and pronunciation of a letter or word to enable the children to make the link between image – symbol – hearing **Picture 44**
- Ideas to practice writing of letters:
 - Magnetic Letters
 - Duplo/Lego
 - Make letters with Playdough
 - Pipecleaners
 - Foam shaped letters
 - Match gloves/socks
- If the children cannot read text in print, they can use computer for reading text or software with a synthetic voice
- Identifying, discriminating and using words, letters and text:
 - Group read 3D objects to match first letters, then introduce pictures of these objects, position words with pictures in book and gradually remove the pictures

ball.....bag.....book

cup.....cap.....can

Visual
stimulation

a. Arial

Visual
stimulation

b. Tahoma

Visual
stimulation

c. Verdana

Picture 34. Different kinds of font which can be used for children with CVI. a). Arial font. b). Tahoma font. c). Verdana font.

Visual
stimulation

a. 12 pt.

Visual
stimulation

b. 14 pt.

Visual
stimulation

c. 16 pt.

Visual
stimulation

d. 18 pt.

Visual
stimulation

e. 20 pt.

Picture 35. Different kind of text sizes that can be used for children with CVI.

„And now here is my secret, a very simple secret: It is only with the heart that one can see rightly; what is essential is invisible to the eye.“
"Just that," said the fox. "To me, you are still nothing more than a little boy who is just like a hundred thousand other little boys. And I have no need of you. And you, on your part, have no need of me. To you I am nothing more than a fox like a hundred thousand other foxes. But if you tame me, then we shall need each other. To me, you will be unique in all the world. To you, I shall be unique in all the world...."

Picture 36. Example of framing specific words in a text to focus and find the targeted words more easily.

„And now **here is my secret**, a very simple secret: It is only with the heart that one can see rightly; what is essential is **invisible to the eye**.“

"Just that," said the fox. "To me, you are still nothing more than a little boy who is just like a **hundred thousand other little boys**. And I have no need of you. And you, on your part, have no need of me. To you I am nothing more than a fox like a hundred thousand other foxes. But if you tame me, then we shall need each other. To me, you will be unique in all the world. To you, I shall be unique in all the world...."

Picture 37. Example of underlining different paragraphs of text with different colour markers.

„And now here is my secret, a very simple secret: It is only with the heart that one can see rightly; what is essential is invisible to the eye.“

"Just that," said the fox. "To me, you are still nothing more than a little boy who is just like a hundred thousand other little boys. And I have no need of you. And you, on your part, have no need of me. To you I am nothing more than a fox like a hundred thousand other foxes. But if you tame me, then we shall need each other. To me, you will be unique in all the world. To you, I shall be unique in all the world...."

„And now here is my secret, a very simple secret: It is only with the heart that one can see rightly; what is essential is invisible to the eye.“

"Just that," said the fox. "To me, you are still nothing more than a little boy who is just like a hundred thousand other little boys. And I have no need of you. And you, on your part, have no need of me. To you I am nothing more than a fox like a hundred thousand other foxes. But if you tame me, then we shall need each other. To me, you will be unique in all the world. To you, I shall be unique in all the world...."

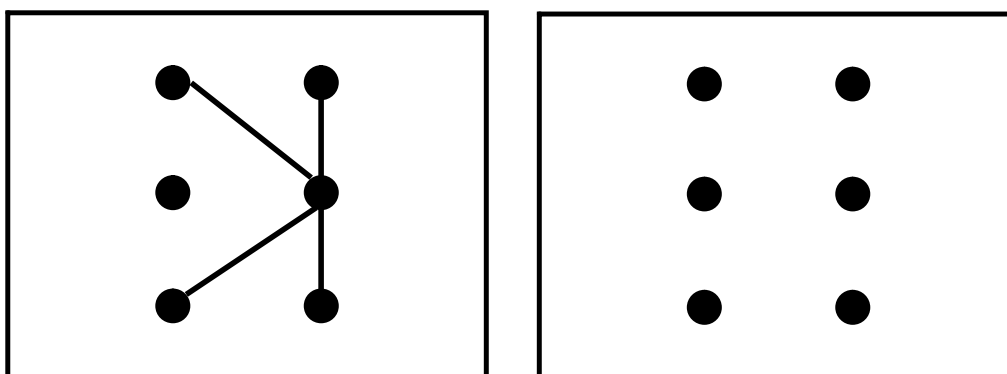
Picture 38. Example of increasing the space between words and lines of the text.

„And now here is my secret, a very simple secret: It is only with the heart that one can see rightly; what is essential is invisible to the eye.“

"Just that," said the fox. "To me, you are still nothing more than a little boy who is just like a hundred thousand other little boys. And I have no need of you. And you, on your part, have no need of me. To you I am nothing more than a fox like a hundred thousand other foxes. But if you tame me, then we shall need each other. To me, you will be unique in all the world. To you, I shall be unique in all the world..."

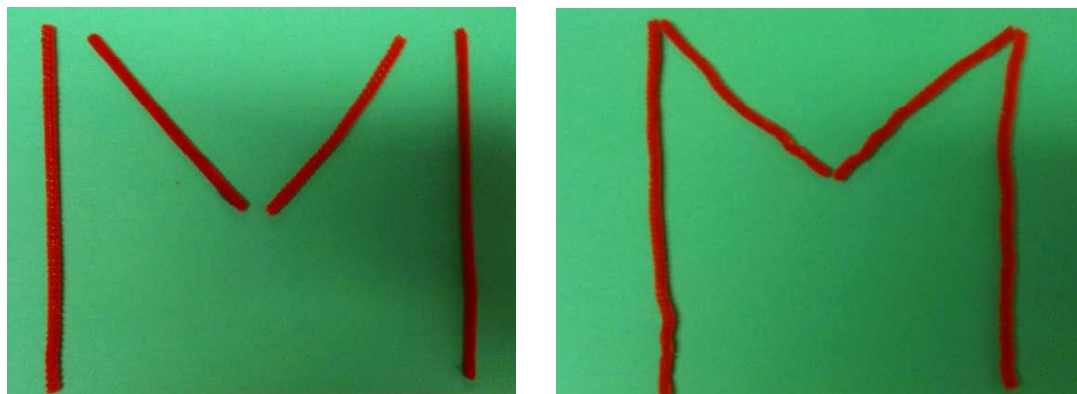
Picture 39. Avoid using the text in italic or underline. As it is very difficult for children to follow the lines of the text.

28

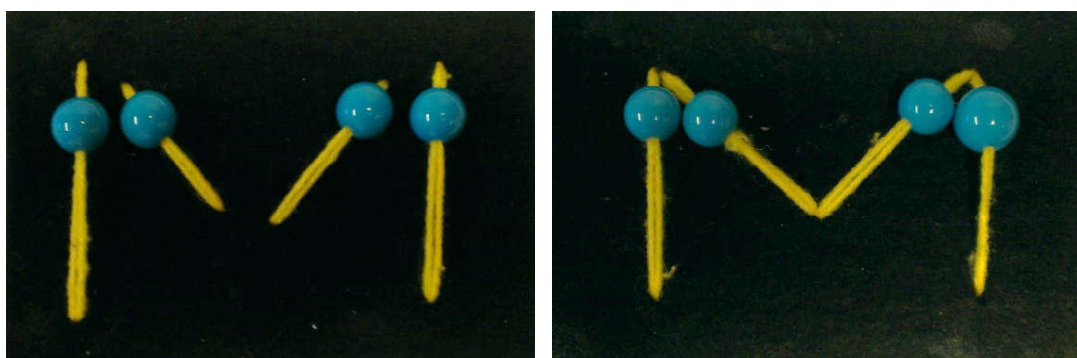


Picture 40. Before writing the letter with the child, practice the fine motor skills, eye-hand coordination and relation between lines by linking dots in the model.

²⁸ Cziker, R.E. October 2016. *CVI in practice: strategies to develop visual-spatial skills for writing letters*. Retrieved from <http://www.pathstoliteracy.org/strategies/cvi-practice-spatial-configuration-symbols-letters>



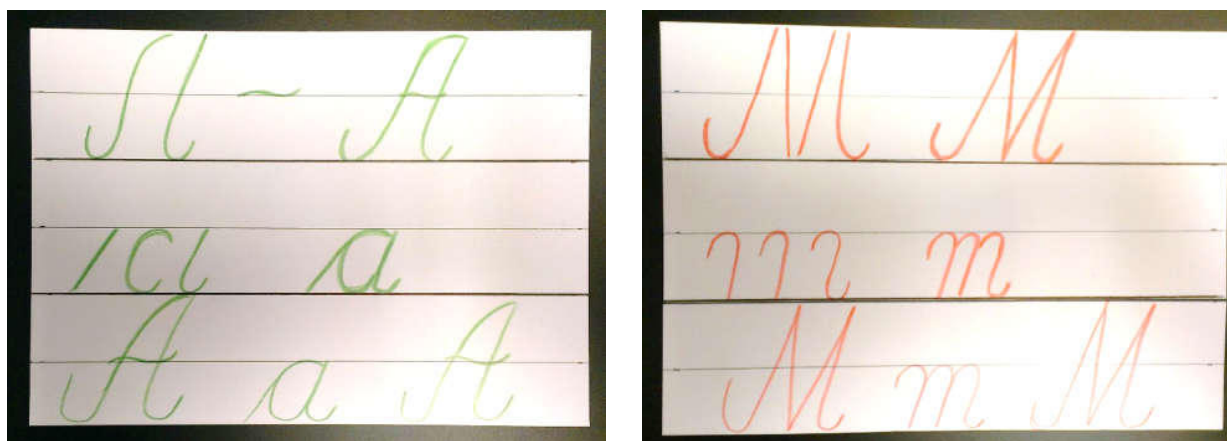
Picture 41. Before practicing the letter present the components of each letter. Create letters from different materials and place them together in order to let the child to see connections between elements.



29

Picture 42. Practice fine-motor direction skills for writing the letters by using colour beads and threads.

²⁹ Cziker, R.E. October 2016. *CVI in practice: strategies to develop visual-spatial skills for writing letters*. Retrieved from <http://www.pathstoliteracy.org/strategies/cvi-practice-spatial-configuration-symbols-letters>



Picture 43. Strategy to write the letters A and M.
Practice the letter by writing each component part of the letter separately.



Picture 44. Associate pictures with letters / words and pronunciation of the letter or word.

³⁰ Cziker, R.E. October 2016. *CVI in practice: strategies to develop visual-spatial skills for writing letters*. Retrieved from <http://www.pathstoliteracy.org/strategies/cvi-practice-spatial-configuration-symbols-letters>

6. STRATEGIES FOR CHILDREN WITH CVI – CHARACTERISTICS FOR PRESENTING DIFFERENT INFORMATION

Keep in mind the following tips and key words for adaptation of information on a table or page:

- Consider the best position for visual stimuli
- Good contrast
- Avoid too much information at one time
- Use a simple and organised method while showing both pictures and text

What is the best way to adapt and present materials – objects, pictures, text to children with CVI?

- Place objects in different areas on the table or desk or position in different areas of the visual field – right, left, up, down, central, etc.
- Place pictures in different areas of the page, observe and notice whether the child has a preference for a certain area. This strategy can provide information about the preferred structure and organisation of information on page
- When combining the presentation of both pictures and text, make sure there is enough space between the text and the picture to enable the child to differentiate clearly between different information
- For beginning readers with CVI who have difficulty in searching and following information, it is recommended to frame the pictures or letters or words in order to follow and see / read them easier. This is

a useful strategy to help the child to switch their eyes from one item to another on the page

- Avoid overlapping objects or pictures on page. This could disturb the ability to discriminate and recognise the picture
- Organise visual information on the page especially for beginning readers (e.g. by colour, size, shape, etc.)
- Place objects closer to the child within their visual field to help them to see it better
- Present one object or picture at a time if the child cannot handle seeing more objects at the same time
- If presenting more objects or pictures, present at a certain distance between them to make it easier for the child to discriminate. This is important if the child has nystagmus or crowding difficulties (difficulty seeing objects or pictures which are too close to one another)
- Use objects or pictures in simple and bright colours to make them easier to perceive, identify and discriminate between
- Remove unnecessary clutter from the areas where objects, pictures or text are placed
- Keep the area where you are working with the child on near vision tasks well organised

7. CASE STUDY – WHEN SCARLETT MET RUDOLPH – A GOOD EXAMPLE OF PRACTICAL LITERACY³¹

How could the world of a child with sensory processing disorder change after responding to their needs?

Scarlett's mother: Since Scarlett has been attending a school that has a sensory diet in place to assist her with her sensory processing disorder I have seen a marked improvement in her willingness to explore objects with her hands. This was always a massive barrier to Scarlett's learning and development so I am very thankful that she is beginning to make progress in this area.



What makes sense for a child with sensory processing disorder?

Her main love of Christmas is centered around the songs; she just adores all the jolly music pouring out of the shops, in school and at home. She regularly requests Christmas and I think this is partly down to her love of a musical Christmas. She is a fan of all of the reindeer songs that do the rounds in December and so I thought this would be a fantastic opportunity to introduce some experiential learning.

The reindeer in its size and interesting texture, plus the fact that it moves would not only be something very interesting for Scarlett to touch, but something completely different than what she has experienced before. I

³¹ Mellor, C. (n.d.). *Through Scarlett's Eyes*. Retrieved from www.throughscarlettseyes.com

wanted to apply meaning to the word reindeer so that she would have a greater understanding of the song lyrics that she loves so much.

I contacted a local reindeer park in Chester called "[Tarvin Sands](#)" and asked if it would be possible for Scarlett to have a visit by herself to get up close to the reindeer. They were more than happy to accommodate Scarlett much to my delight!

Each night for the days running up to the trip I told Scarlett a variety of short stories which discussed reindeer and what role they played at Christmas, there were times when she was reluctant to listen to the entirety of the story, but regardless of that I repeated the tales each night as a way to get her brain thinking about the animals.

I found this [YouTube short story](#) particularly well received as it included a nice instrumental of jingle bells in the back ground. But there are plenty on the internet for you to choose from! I also made sure I sang a reindeer related song to her each night after the story to give Scarlett her little musical fix and it also rewarded her for listening!

On the way to "Tarvin Sands" we listened to reindeer based songs in the car and had a good old singalong! When we arrived she certainly had reindeer on the brain.

A lovely reindeer called Archie was there to greet Scarlett and she was very open to exploring him. She particularly enjoy him sniffing in her hands and repeated back to me the parts of the body she was touching. She became ever so excited when he began to move and gasped as she comprehended his size. I was amazed to see how happy she was to touch all the different parts of Archie and chuckled throughout the



experience. It really was a pleasure to see. She even had a go at walking him and held onto to his lead as he walked around seeking more grass.

This was a fabulous experience for Scarlett and despite her being unable to relay to me verbally what benefits she got from exploring the animal we had discussed so much, her smile and her willingness to explore spoke volumes.

Awareness of sound, smell, taste or touch

Able to demonstrate visible responses to external stimuli. E.g. Aware of proximity of person or object

Vision activity:

- Select food in bright colourful wrappers
- Play with the wrappers to elicit sound. Take food stuffs out of wrappers and smell and taste. Ensure it is a food item that the child likes. Explore the food item tactually

Localisation**Localisation of light with auditory cue**

Able to look in the direction of light with a sound or auditory cue at the light source

Localisation of light

Able to look in general direction of but not focus on a light source without an auditory cue

Localisation of people or objects by vision with an auditory cue

Can localise a person or object with an initial sound cue or cues (e.g. colour of object, person's clothing)

Vision activity:

- Use a sound cue to encourage the child to localise on a bright coloured food target, e.g. banana, orange or a food item presented in bright coloured packaging. Present in child's preferred field of vision. Present on a black background, black supermarket shelf

Localisation of people or objects vision only

Can look/turn in direction of people/objects (but not able to focus directly on them)

Vision activity:

- Present above activity but without the auditory cue. Use the same bright coloured objects, allow the child to hold the object, to tactually explore once they have localised on to it
- Introduce a new food item, bright coloured, presented on a high contrast background
- Introduce a second item, place the item on a black supermarket shelf
- Shine lights onto different tins, bright coloured objects, make mobile of supermarket purchases, tin foil, shiny make up bag, bright coloured pencil cases etc.

Fixation**Fixation of light or toy/object highlighted by torch/spotlight with an auditory cue**

Able to look directly at a light source or to an object highlighted by a torch, but dependant on a sound cue to assist them to focus on it

Vision activity:

- Take a trip to the supermarket and choose a toy/object that the child likes or is familiar with. (Preferably accompanied by the child.) Use during fixation activity - shine spotlight on object – add a sound cue if necessary

Fixation of people, objects and patterns

Able to look directly at people/objects or highly contrasted black and white patterns.

Vision activity:

- Select some black and white packaging from an item purchased at the supermarket to use during the fixation activity. E.g. wrapping paper

- Shine a light on objects from supermarket, choose bright colourful/black and white products

Visual interest and avoidance

Shows interest in certain items by showing pleasure or looking longer or with more intensity

Vision activity:

- Select foods that the child likes when engaging them in a 'looking' activity

Visual following of an object or person

Able to look directly at a person or object and visually follow them

Vision activity:

Follow items on the conveyor belt. Look at a person whilst on a visit to the supermarket and visually follow them.

Transferring gaze

Able to fixate on one item and then re-fixate on another item

Eye pointing to indicate simple choice between 2 objects or people

Able to choose by looking directly at a person or object longer than another or showing more pleasure for one than another

Scanning eye movements to choose favourite or specified object or person

Able to look from one person/object to another and demonstrate a clear choice by looking with more pleasure or longer at it

Vision activity:

- Select objects from the supermarket that are large bright coloured and which are familiar to, or a favourite of the child. Then move to smaller light up flashing toys
- Then move to smaller objects still, brightly coloured with a small amount of movement. (all objects to be selected from the supermarket shelves – created for use in the classroom)

Visually directed reach including choices

Able to see and reach for an object with or without assistance

Visual activity:

- Present two objects which are familiar and liked by the child to reach for. Select some objects from the supermarket shelves that are smaller, pasta pieces, biscuit, cherries, blueberries (link to healthy eating)
- Increase the amount of objects to select from 2 – 3
- Present on high contrasting background

Visual anticipation

Able to demonstrate understanding of a visual cue in relation to something which is about to occur: E.g. excitement, pleasure or displeasure.

Vision activity:

- Visit the ice cream freezer select ice lollipops, feel ice lolly, encourage child to look at it, open, eat, enjoy!

Scanning using sound or other sensory mode

Able to choose a favourite or requested item or person using hearing, touch, taste, smell

Vision activity:

- Position a small selection of items from the supermarket shelves on a high contrasting background, or from the shelf encourage the child to scan and locate a specific item. Place a familiar item that is known to the child amongst the selection. Increase the amount of items from 2 – upwards. Gradually and if possible decrease size of objects used.

9. EXAMPLE OF RESOURCES – LITERACY STRATEGIES FOR CHILDREN AND YOUNG PEOPLE WITH CVI

Concept vocabulary bags³³



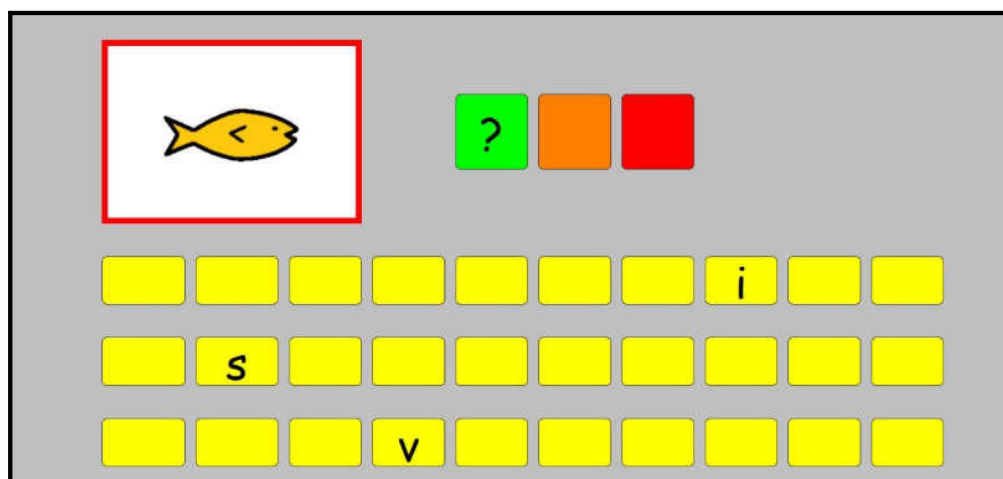
Picture 45. Concept bags/boxes to introduce gradually, build concepts, language, vision (attention, fixation, scanning, tracking, locating, discrimination of objects/images), auditory and fine motor skills.



Picture 46. Develop visual skills through language of 'same and different' attend, fixate and scan.

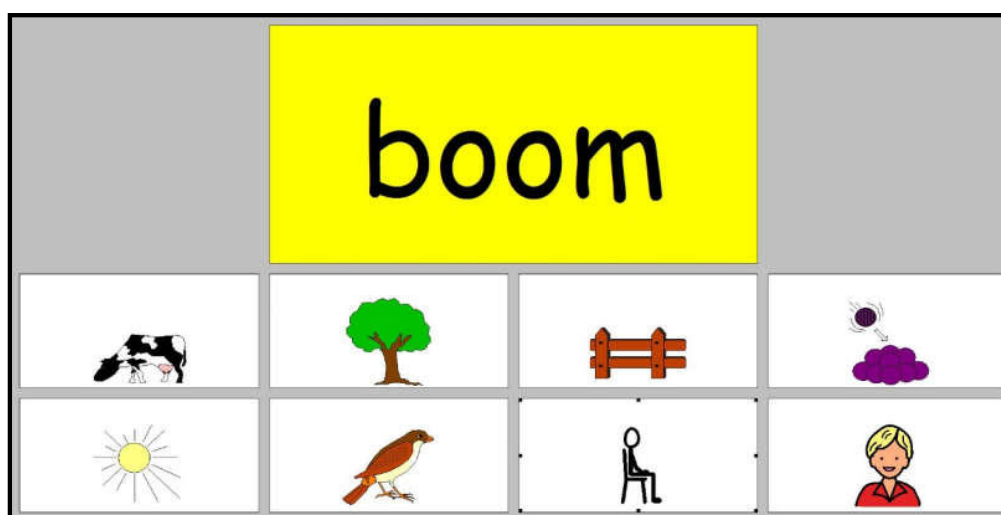
³³ Idea and photographs shared by Positive Eye Ltd

10. EXAMPLE OF RESOURCES FOR CHILDREN WITH CVI³⁴



Picture 47. Printscreen Mind Express exercise writing – Picture PSC-symbol.

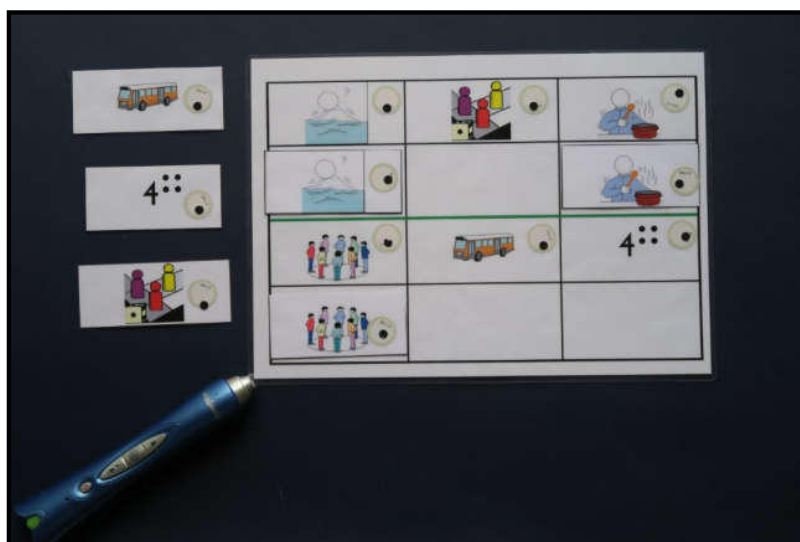
The more words the child learns, the more letters appear on the screen keyboard.



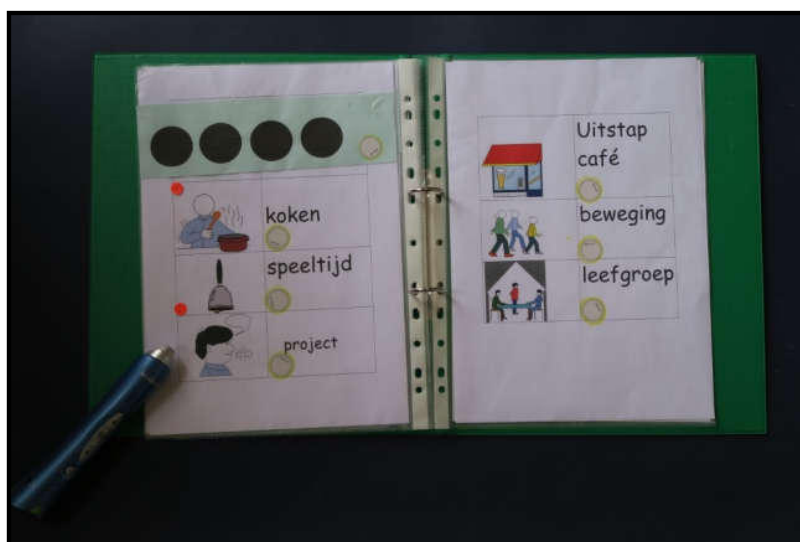
Picture 48. Printscreen Mind Express exercise reading – Pictures Beta symbols / PSC-symbol
Working with a touch screen.

³⁴ Resource shared by the Centrum Ganspoel, Belgium.

11. EXAMPLE OF RESOURCES – STRATEGIES FOR CHILDREN AND YOUNG PEOPLE WITH CVI – FUNCTIONAL READING – AGENDA³⁵

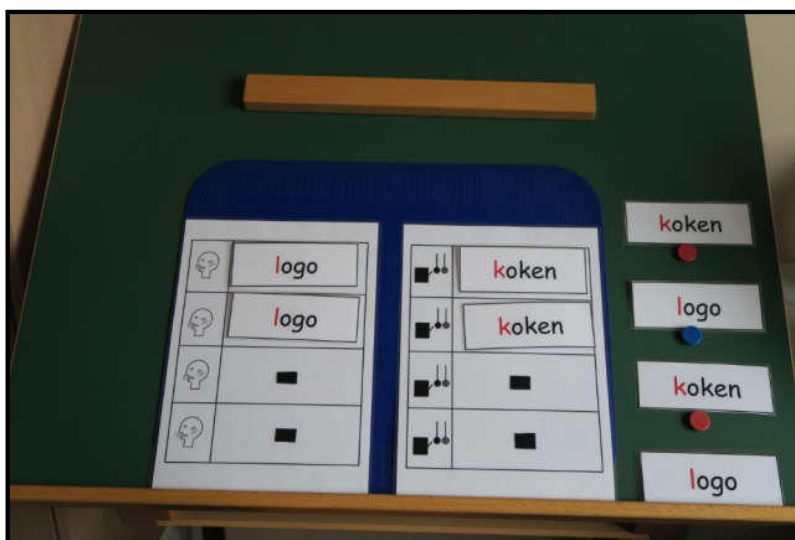


Picture 49. Reference pictures: Mind Express databank Betasymbols – Beta V.Z.W.



Picture 50. Reference pictures: Mind Express databank Betasymbols – Beta V.Z.W.

³⁵ Resource shared by the Centrum Ganspoel, Belgium.



Picture 51. Reference pictures: Maatschappelijk Lezen – Een praktijkgericht werkboek - Werkgroep 'maatschappelijk lezen': Annie Bonnarens e.a.

Picture 49: Functional reading

Print recognition used as part of the child's daily function. The child checks themselves by using a reading pen. Each print word corresponds to the recording of a word.

Picture 50: Functional reading

Diary of a pupil. The four black dots correspond to the fourth day of the week. We use Mind Express databank Betasymbols and written words. Children recognise the global word. They check themselves by using the reading pen.

Picture 51: Functional reading

Training to recognise global words

Training to recognise icons

Training to match icons to global words

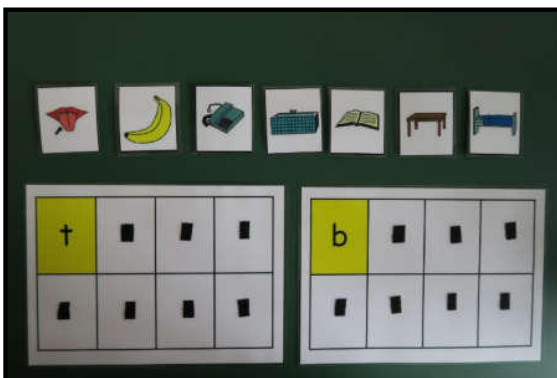
12. EXAMPLE OF RESOURCES – STRATEGIES FOR CHILDREN AND YOUNG PEOPLE WITH CVI – MATCHING PHONEME WITH GRAPHEME³⁶



Letterbins with concrete materials related to initial phonemes

Match a phoneme to a grapheme:

- Child looking for objects from their own environment to match to objects from the corresponding letterbin
- Child explores concrete objects and learns the corresponding grapheme
- Find the stranger: Child finds and puts concrete object with corresponding initial phoneme in the letterbin



Picture 51. Reference pictures:
Mind Express databank
Betasymbols – Beta V.Z.W.

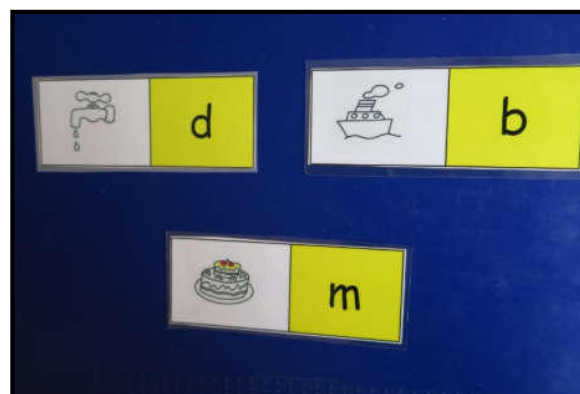
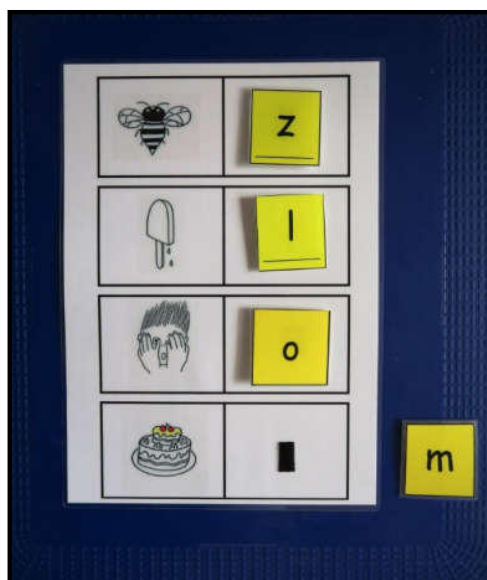
Match print to corresponding grapheme

Match phoneme to grapheme:

- Grapheme clearly visually different (e.g. o and L)
- Grapheme with small differences in detail (e.g. a and o)
- Graphemes with special attention to its orientation (e.g. b and d)

³⁶ Resource shared by the Centrum Ganspoel, Belgium.

13. EXAMPLE OF RESOURCES – STRATEGIES FOR CHILDREN AND YOUNG PEOPLE WITH CVI – LETTER KNOWLEDGE³⁷

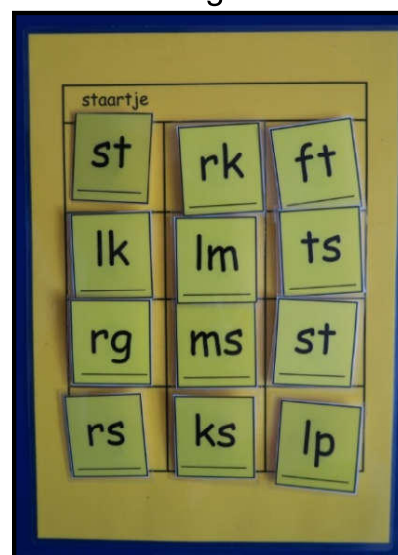


Picture 52. Some children have difficulty in recalling sounds, they may depend on the use of sound gesture.

Reference Pictures: Dyspraxie programme Swets & Zeitlinger B.V. Publishers

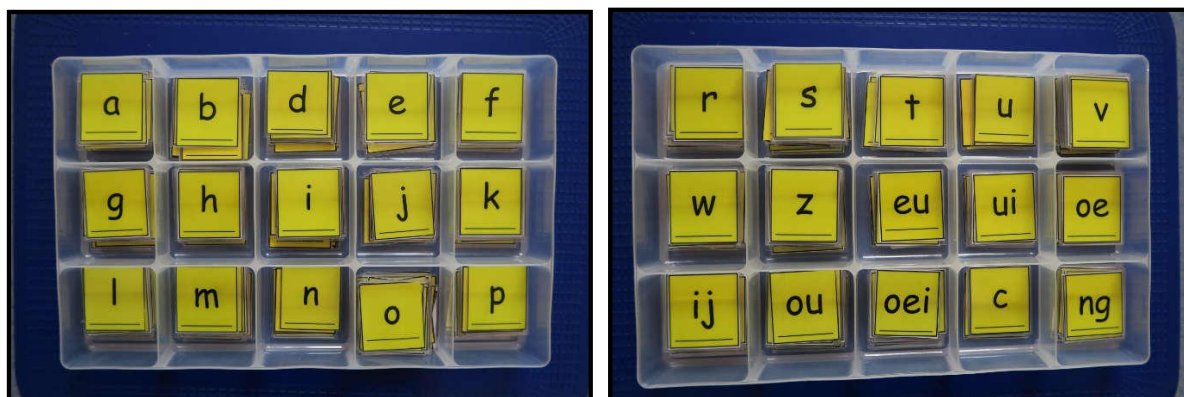


Picture 53. A folder with graphemes:
Simple, clear presentation.



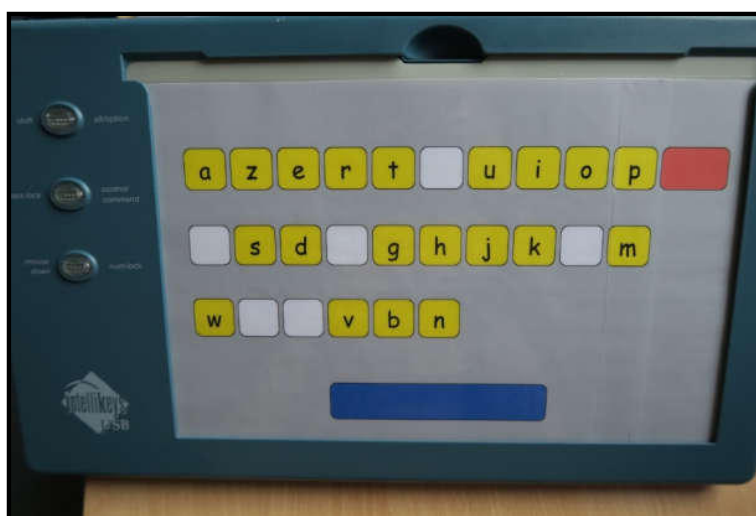
Picture 54. Practice end clusters

³⁷ Resource shared by the Centrum Ganspoel, Belgium.



Picture 55. Letterbox developed by teachers and speech therapist at Ganspoel. Early literacy for children with disabilities.

14. EXAMPLE OF RESOURCES – STRATEGIES FOR CHILDREN AND YOUNG PEOPLE WITH CVI – ADAPTED KEYBOARD³⁸

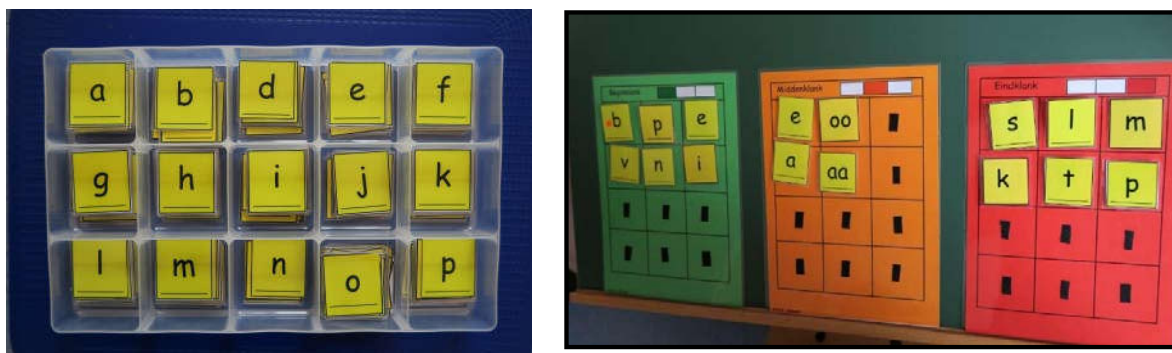


Picture 56. Adapted keyboard: Selfmade overlays made with Overlaymaker.

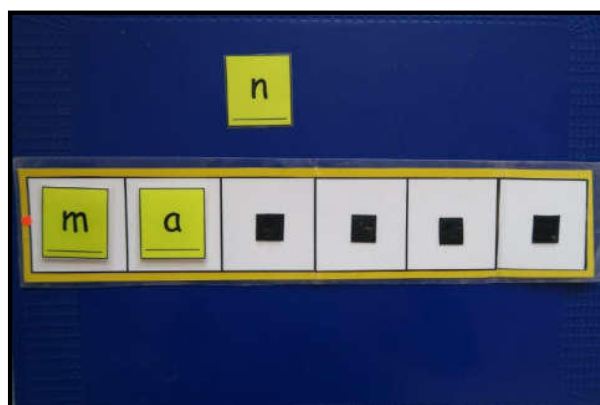
Benefit: The child only sees the graphemes he/she has already learned. This way he/she can easily write simple words.

³⁸ Resource shared by the Centrum Ganspoel, Belgium.

15. EXAMPLES OF RESOURCES – STRATEGIES FOR CHILDREN AND YOUNG PEOPLE WITH CVI – WORD BUILDING³⁹



Picture 57



Picture 58

Beginning reading and writing for children with CVI may be exhausting and can create frustration. Therefore we need to look for methods and materials that offer the student / child more comfort and provide more opportunities to reach their goal.

Picture 57: structured strip for graphemes beginning, middle and final word, corresponding to colours

Picture 58: structured strip to build words with graphemes

³⁹ Resource shared by the Centrum Ganspoel, Belgium.

Part 16: Curriculum general – Strategies for children and young people with CVI, mainstream setting

1. STRATEGIES FOR CHILDREN WITH CVI – ADAPTATION OF ENVIRONMENT

1.1. STRATEGIES FOR ADAPTING THE CLASSROOM AND THE POSITION OF THE CHILD WITH CVI

Keep in mind the following tips and key words for classroom adaptation and the position of the child in relation to the visual stimuli:

- Environment should be clear of clutter
- Good light source
- Good contrast
- Sloped board for supporting paper or documents
- Organised area (e.g. classroom, table, desk, etc.) of activity
- Good body position for observing the visual stimuli

What is the best position for the child to observe visual stimuli?

What classroom adaptations do we need to provide?

- Keep instructions brief and simple
- Present lecture information in a visual format (e.g. white board, PowerPoint slides, handouts, etc.)
- Use more than one way to demonstrate or explain information (e.g. concrete real objects)
- Provide child with CVI with materials in alternative format at the same time that curriculum materials are given to the rest of the class

- Position the child at the front of the classroom
- Provide hand-outs (preferably electronically) in advance of lectures and seminars and allow audio- where possible to assist review of notes. Some children may need handouts and tests on coloured paper to reduce glare
- Give verbal description of visual aids or writing on whiteboard or slides and spell aloud difficult words or names. Talk through calculations or procedures as they are carried out
- Be aware of the effect of lighting and reflections on white-boards
- Keep teaching environment consistent and uncluttered and allow the child to sit closer to visual resources if necessary
- Lighting levels may need to be high for some children who are sensitive to light or who are directly facing the source of light
- Remove or cover reflective surfaces to reduce glare
- Position child in the most suitable position for maximum access to the board
- Be aware about the acoustic environment and how it might affect the child
- Adapt the child's sitting position and chair if it is necessary
- Use clear, contrasting writing tools in the class (e.g. black pen on whiteboard)
- Try to avoid using distracting accessories
- Stand in front of the child at the optimum distance to enable them the best view of you
- Address the child by their name when you are talking to them
- Provide an appropriate and adequate area with less clutter and visual information when presenting a visual stimuli or giving a visual task

- Create an organised work place and position tasks on a high contrasting background (e.g. place a piece of black card or fabric on the desk or table)
- Create daily routines by keeping regularly used objects positioned in the same place in the classroom
- Avoiding using other stimuli while working, minimise other activities taking place in the same room, etc.
- Experiment with different lighting conditions to assess the best conditions for viewing
- Use a sloped board and encourage the child to turn their head or position their head while exploring objects, scanning a picture or reading a text
- Change the orientation of the page from portrait to landscape format if this is easier for the child

1.2. DISTANCE RELATED TASKS

- Create a clutter free area around the front of the classroom and board area
- Use black backing paper on walls to reduce clutter
- Avoid too busy, or too many posters on the wall
- Provide the information which is presented on the wall at the child's print size in their own personal binder
- Wear a plain top with no accessories whilst working directly with the child
- Consider the needs of the child in different settings: class, playground, gymnastics or an excursion
- The child has to sit close to the action, at a distance that enables the best view. E.g. right in front of the whiteboard in the middle of the first row (to maximise visual attention and minimal distraction from environmental factor). The child may need to sit in different places for different activities
- Give clear verbal prompts and cue the child into the specific target in the distance using landmarks close by to help
- Give the child strategies to scan a scene for a specific visual target. Encourage them to describe what they see
- Take the child closer to the object to view in more detail
- Consider the lighting in the classroom. Evenly lit and glare free environments are more conducive to enable access to learning

Whiteboard/SMART board

- Black rather than coloured pens provide better contrast on whiteboards
- Present text in well contrasting black Arial/Comic Sans font, 24pt minimum size and well-spaced. Avoid using colour
- Give the child a copy of the information written on the board on paper or on their personal computer
- Present information in printed text. This is easier to read than handwritten text
- Use black rather than coloured pens to present text
- Keep a simple logical layout
- Present large simple images, use bold colours with black outlines and remove visual detail that is not necessary
- Describe information as it is referred/pointed too
- Verbalise as text is written onto the board. This strategy is only suitable if the child is required to listen and not copy at the same time, as the two tasks combined maybe more difficult
- Consider using technology to support access (e.g. iPad/ tablet, Prodigy or Join Me)

1.3. LEARNING TO ACCESS – CLOSE WORK TASKS

Handwriting or touch typing

Work with child to assess the best combination of pen/paper to use. Some suggested strategies to consider include:

Paper

- Wide black/bright coloured lined paper. Assess access using cream/grey/pale blue
- Enlarged, black/bright coloured squared graph paper
- Matt finish – no glare
- Find out what colour paper provides the best background for reading and writing so this activity is as comfortable as possible⁴⁰

Writing tools

- Provide high contrast (e.g. black pen: Berol Fineline or Handwriting Pen)
- Try a range of pens and nibs to find the optimum pen for child
- Pencil: Use 2B—4B
- Check the child can read back their writing using the chosen pen/pencil
- Check whether the child can read their own handwriting
- When the child is unable to write or is not able to read their own handwriting, move towards digital access (e.g. start typing course: 'typtien' typing method)⁴¹

⁴⁰ Leerhulpmiddelen (n.d.). *Lezen in kleur*. Retrieved from www.leerhulpmiddelen.nl

⁴¹ Developed by Wendy Peerlings, Christiaan Giudice www.explore-online.be

Drawing and colouring

- Clear black outlines to colour within
- Large simple shapes to colour
- Enlarged aspects of picture to aid accurate colouring
- Use Wikki Stix to create guideline for colouring
- Use colouring tools which will provide high contrast (e.g. felt pens)

Writing position and posture

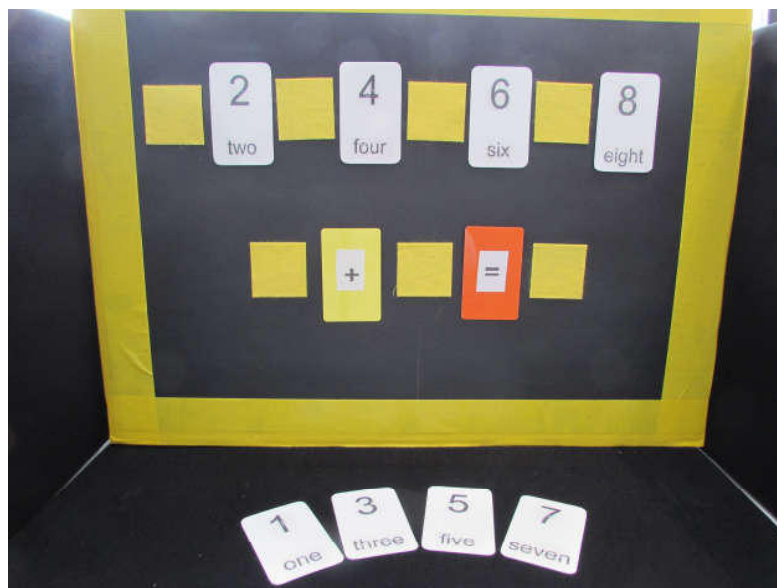
- Consider if the child requires:
 - A hard cushion on the chair, use a footrest for a stable posture
 - A different chair – higher/lower to enable them to access more easily
 - A sloped board
 - Paper orientated in landscape format. Depending on the preference, and the need in scanning (vertical/horizontal)

Lighting

- Avoid the child sitting with their back to the window when the light is cast over their shoulder it creates shadows
- Natural light is only better when it's constant light, not on a cloudy day when sun and clouds alternate
- Provide an individual artificial lighting positioned in front of the pupil/target. Do not focus the light on the writing hand
- An additional task/spotlight may help, with the light focused on the page or target

1.4. CLOSE WORK TASKS – GRAPHICS

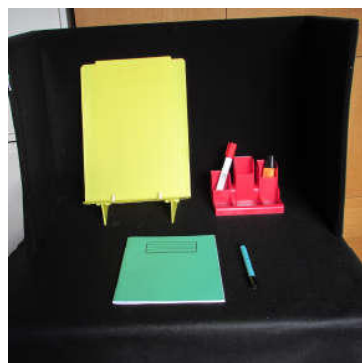
- Present one clear simple picture per page on a high contrasting background
- Present large, simple, high contrasting and high quality print versions of photographs, pictures and diagrams. They need to be realistic / representative (present originals if there is no high quality version available)
- Colour important details of pictures to aid better picture recognition (e.g. when children have difficulty in recognising drawings presented in black outline, use a colour to highlight the detail)
- Give more time to the child to look at pictures / graphics
- Increase clarity by adding black outlines to simple pictures
- Remove unnecessary information (e.g. extra illustrations or graphics) from the page
- Provide access to pictures and graphics on the iPad tablet / computer to provide access via a high contrasting, well-lit background
- Provide a verbal description of the picture/graphic
- Provide a real object to reinforce understanding of the 2D image. Give one object at a time



Black board with yellow tape to highlight, Gripping Stuff to hold ID cards in place – numbers are stuck onto the ID card using a label and presented in a clear font.



Black clip board from IKEA creates uncluttered background



High contrast stationery – reading stand, exercise book, pen and desk tidy

1.5. ADAPTING CLASSROOM MATERIALS FOR A STUDENT WITH CVI⁴²

These materials were designed to be used with a student with Cerebral Visual Impairment (CVI). These materials have proven very effective when presenting to him in his classroom. A folder for the student was created to make up of black felt sheets outlined in yellow and red duct tape, sparkle poster numbers and letters with scratchy Velcro on the back of each, sparkle pipe cleaners and mini pom-poms.

Materials:

- Black felt sheets
- Red and yellow duct tape
- Sparkle poster numbers
- Letters with scratchy Velcro on the back
- Sparkly pipe cleaners
- Mini pom-poms

Procedure:



Picture 59. The red number nine is paired with 9 yellow items. The frame is outlined with yellow duct tape to call the student's visual attention to it.

⁴² Fitch, T. (n.d.). *Paths to Literacy*. Retrieved from <http://www.pathstoliteracy.org/strategies/adapting-classroom-materials-student-cvi>



Picture 60. Use red or yellow numerals on a black background. Outline the black background with yellow or red duct tape.



Picture 61. Use red or yellow numerals on a black background. Outline the black background with yellow or red duct tape.



Variations:

- The student can match red items to the corresponding red number or yellow numbers to yellow items, depending on colour preference
- Red numbers can be matched to yellow items

1.6. SELF-REFLECTION – CREATING VISION FRIENDLY CLASSROOMS FOR CHILDREN WITH CVI

Vision Friendly Class Approach	Yes/No	Comments if No
Do we consider the lighting in the classroom and where we position the child to work (e.g. away from direct sunlight, not positioned directly under a bright, harsh classroom ceiling light or use of blinds to control lighting)?		
Do we stand away from the window when talking to the child so that no silhouette occurs?		
Do we position the child near the smart board for viewing?		
Do we present high contrast information, in simple layout on the smart board?		
Do we use the child's name when we address them?		
Do we have a "VI friendly" display which has a good contrasting background, is clear, simple and tactile and presented at the child's eye level?		
Do we give the child an individual preview/follow up of what is shown to the rest of the class?		
Does the child's table top/tray top give a		

Vision Friendly Class Approach	Yes/No	Comments if No
contrast against the object being shown (dark matt backgrounds are best and matt laminate is best)?		
Do we provide a simple, clutter free individual environment for the child to work in (e.g. at their work station do we consider black screen behind us or a black reading board)?		

Vision Friendly Class Approach	Yes/No	Comments if No
Do we wear simple black t-shirts (no jewellery/scarves) when we are working with the child?		
Are we aware that what we present to the child should be clear/simple and not complex/busy?		
Do we allow the child extra time to look at objects?		
Do we give the object to the child to explore to support understanding?		
Are we aware that the child can suffer from visual fatigue and do we cater for this? Do we allow rest breaks, time out?		
Do we use individual objects of reference/real objects to support learning?		
Are we aware that the child may switch off their vision when using their hearing?		

Vision Friendly Class Approach	Yes/No	Comments if No
Do we ensure our interventions are planned to maximise the child's access (e.g. using either vision or hearing for the task/activity)?		
Are we aware that a child's vision can be affected by their position or if they are unwell? What strategy do we use in this situation?		
Are we aware of the child's best field of vision? Do we present the task or activity in this part of the visual field?		

1.7. STRATEGIES FOR CHILDREN/YOUNG PEOPLE WITH CVI – MAINSTREAM SETTING – WHAT CAN YOU SEE/RECOGNISE? SELF REFLECTION FOR THE YOUNG PERSON⁴³

Can I access information on the blackboard / white board?

- Can I find the assignment?
- Can I copy the assignment accurately?
- Can I see some places on the blackboard / white board better than others?
- Can I see the blackboard / white board on a bright day?
- Can I see the blackboard / white board on a dull cloudy day?
- Can I sustain viewing from the blackboard / white board to the book and from the book to the blackboard / white board for a whole day?
- Can I easily transfer viewing from book to book or from book to PC screen?

Can I see the worksheet?

- Can I identify the words, pictures and numbers on the page (I don't need to guess)?
- Could I read the whole worksheet without feeling tired?
- Do I find colour cues helpful when I am reading a worksheet?
- Do I find highlighted sections, underlining and use of bold text helpful?
- Can I find the open space to complete a text?
- Can I find all exercises on a worksheet or do I "forget" to fill in exercises?
- Can I follow a worksheet without using a finger or cover sheet?
- Can I follow the text while someone reads?

⁴³ Reference: Hudson L. (2011). *Paths to Literacy: Teacher of Students with VI*. Retrieved from <http://www.pathstoliteracy.org/blog/can-you-see>

Can I see the book?

- Can I read the words without feeling that I am guessing?
- Can I read whole words at a time or do they need to be magnified?
- Can I only see parts of words in one view?
- Can I read fast enough to complete work on time?
- Can I scan a page for specific information?
- Can I find topics in busy books or on internet sites?
- Can I read for a long time and when there is a lot of text?

Can I see the pictures in books and worksheets?

- Can I identify pictures easily?
- Can I easily see the difference between things/pictures that resemble each other?
- Can I identify photographs and line drawings?
- Can I see pictures/photographs on paper and on an electronic device?
Is one easier to see than the other?
- Can I only see items in certain places on the page (e.g. in one corner)?
- Can I see pictures better if they are presented in a certain colour and at high contrast?
- Can I see detail in pictures?
- What is the smallest detail I can see?
- Can I follow rows and columns and interpret a table (e.g. mathematics or arrival and departure times of the bus)?
- Can I easily use an atlas?
- Can I look up a word in the dictionary?
- Can I fluently read maps, use a compass or use coordinates?

- Am I good at geometry?
- Can I recognise mathematical figures?
- Can I independently draw geometric figures or do I need help?
- Can I use mathematical equipment, e.g. a protractor or a ruler?

Can I see/ recognise my teacher and friends?

- Can I recognise people, teachers or friends in a situation or do I have to hear their voices?
- Can I see their outlines or all of their features?
- Can I see details in their faces? Do I know when they are smiling/sad/grumpy?
- Can I see details of what they are wearing (e.g. buttons or badges)?
- Can I find them on the playground when it is sunny?
- Can I find them on the playground when it is a dull day?
- Can I see them when they stand in front of me, to the side or if there are people both sides in the same time?
- Can I find them in a crowd of people, in the canteen or in the entrance hall of school?
- Can I see them when they stand in the window when the sun is shining?
- Can I see them when they approach me in the corridor?

Socially and emotionally

- Can I keep looking at people when I talk to them?
- Can I function in a large, noisy group or do I prefer a small group in a quiet place?
- Can I follow and understand instructions given in group or do I need extra instruction?
- Can I understand my problems? How is my self-image?
- Can I explain to others I have difficulties with...?
- Can I feel secure/insecure in everyday situations?

Organization

- Can I find my satchel on the playground among other satchels?
- Can I find my coat at the coat rack?
- Can I find my bike in the bike rack at school?
- Can I find my desk in the classroom?
- Can I use my agenda independently?
- Can I easily find something on my desk?
- Can I quickly find my books and write something or is it chaos?

Mobility and orientation

- Can you notice obstacles on foot or by bike?
- Can you easily find your way in familiar places?
- Can you orientate yourself in strange or less familiar surroundings?
- Can you easily find your classroom?
- Can you find the bus you need?

- Can you recognise where to get off the bus?
- Can you find the way to school independently?
- Can you safely anticipate with your bike in traffic or do you prefer a tandem?
- Can you respond in time and safely to unforeseen circumstances?
- Can you estimate distances well?
- Can you properly judge the speed of moving objects?

Excursions

- **Training trip**
 - Can I get enough visual information?
 - Can I write down the collected information?
- **Movie/theatre**
 - Can I visually follow the pace?
 - I listen more to the movie than I look at the pictures?
 - Can I understand the movie or should I be informed in advance?
- **Library**
 - Can I quickly find the books in the library?
 - Do I know the structure of the library?

2. EXAMPLE RESOURCES FOR CHILDREN WITH CVI⁴⁴

2.1. GRAPHEMES AND PHONEMES

Picture 62: Story sequencer

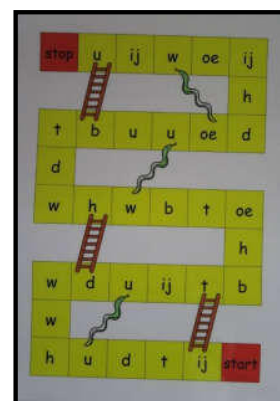


To practise graphemes that are not well known yet. The child independently practices the graphemes with auditory feedback for control.

Within the beginning reading stage the child uses the story sequencer when he/she reads a word. If they cannot recall a certain letter, he/she can use the story sequencer. In this way they practice difficult or new graphemes.

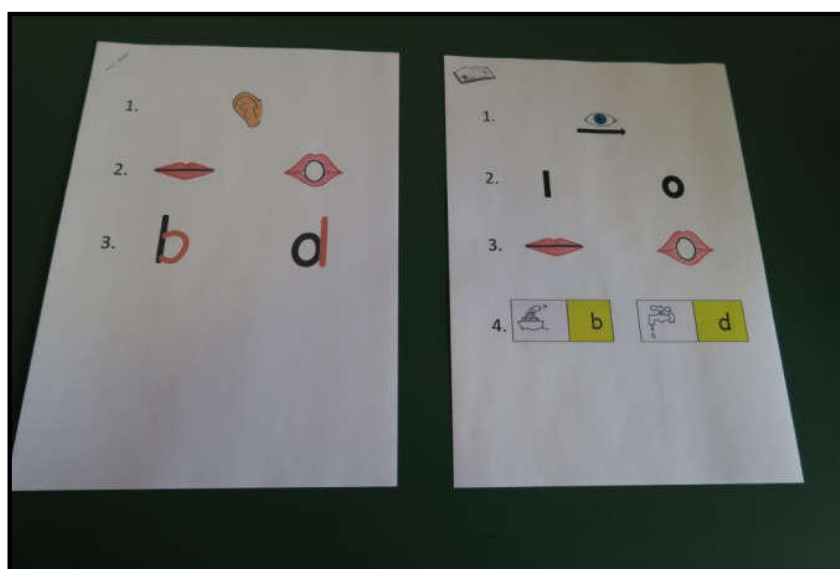
Picture 63: Exercise made by teacher / speech therapist

The goal is to training/practice difficult graphemes using a game. You can play with two or more people.



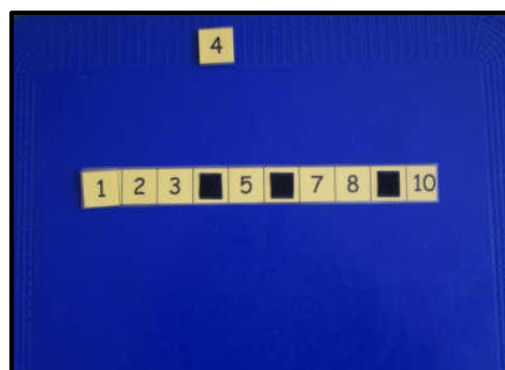
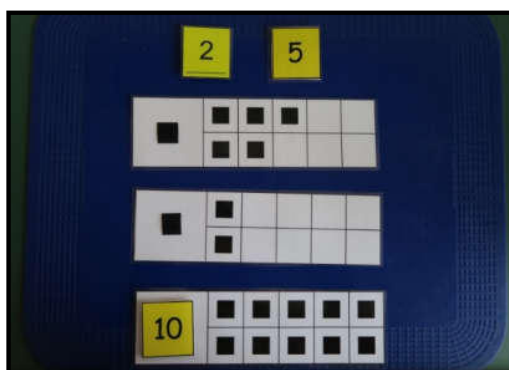
⁴⁴ Resource shared by the Centrum Ganspoel, Belgium.

Picture 64: Support to discriminate 'b – d' in writing and reading.⁴⁵



⁴⁵ Reference: Dyspraxie programma Swets & Zeitlinger. B.V. Publishers.

2.2. MATHEMATICS⁴⁶



$5 \times 2 =$	...	$1 \times 9 =$	...
$1 \times 7 =$	...	$6 \times 6 =$	...
$0 \times 3 =$	...	$6 \times 7 =$	...
$8 \times 7 =$	...	$5 \times 9 =$	...
$1 \times 10 =$	...	$2 \times 0 =$	...
$4 \times 7 =$	...	$0 \times 5 =$	...
$9 \times 8 =$	...	$4 \times 9 =$	...
$7 \times 8 =$	...	$2 \times 1 =$	...
$4 \times 3 =$	...	$6 \times 4 =$	...
$6 \times 2 =$	...	$2 \times 3 =$	...
$2 \times 4 =$	...	$8 \times 3 =$	...
$2 \times 5 =$	...	$3 \times 4 =$	...
$0 \times 7 =$	...	$5 \times 3 =$	...
$4 \times 6 =$	...	$10 \times 5 =$	...
$9 \times 7 =$	...	$0 \times 2 =$	...
$7 \times 4 =$	...	$3 \times 8 =$	...
$9 \times 4 =$	...	$9 \times 6 =$	...
$8 \times 6 =$	...	$8 \times 4 =$	...
$0 \times 9 =$	...	$6 \times 8 =$	...
$1 \times 1 =$	...	$6 \times 0 =$	...

Picture 65. Examples of adaptation of mathematic exercises for children with CVI.

⁴⁶ Resource shared by the Centrum Ganspoel, Belgium.

2.3. READING BOOK⁴⁷



Picture 66. Examples of book with bar code reader / reader pen.

The pupil can, during the free moments or reading moments, read a book themselves with the help of the bar code reader/reader pen.

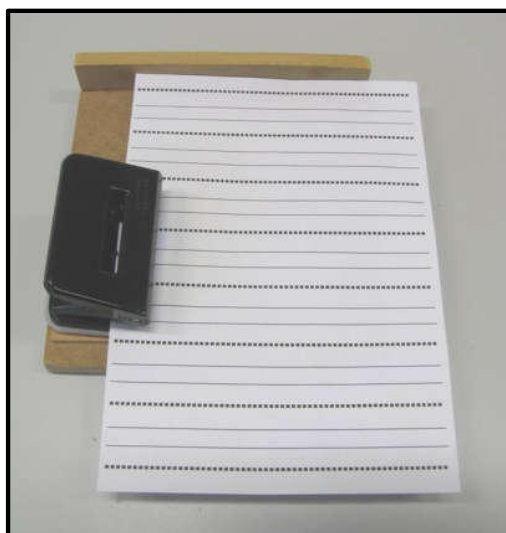
Children with CVI have trouble reading and listening at the same time. This way they look as long as necessary to pictures and then listen to the text.⁴⁸

⁴⁷ Resource shared by the Centrum Ganspoel, Belgium.

⁴⁸ Reference book: Slegers L. (). *Karel viert Sinterklaas*. Clavis.

2.4. RESOURCES TO INDEPENDENT READING⁴⁹

Resources to support independence in the classroom.



Picture 67. Examples of resources to handle the writing page.

⁴⁹ Resource shared by the Centrum Ganspoel, Belgium.

3. PCS SYMBOLS

We use this in Ganspoel with the children who have special needs. They have CVI and mental development problems.



Picture 68. Reference pictures:
Mind Express picture databank
PCS-symbols

The pupil practices recognising global words: months of the year
Piction communication symbols (PCS) are designed to convey a particular meaning, not just an object.

TeachCVI team



The National Institute for the Blind, Visually Impaired and Deafblind, Iceland



Child Vision, Ireland



Positive Eye Ltd., United Kingdom



Agency for Special Needs Education and Schools, Sweden



Katholieke universiteit Leuven, Belgium



State Diagnostic and Counselling Centre, Iceland



The Royal Blind, Scotland