What is reading?

a. Reading = reading comprehension

b. Simple View of Reading (Catts, Hogan, & Fey, 2003; Catts, Hogan, & Adlof, 2005; Gough & Tunmer, 1986; Hoover & Gough, 1990)
   i. Word Recognition
   ii. Listening Comprehension

c. Is it that simple? (Rope graphic)

2. Who are children with phonological disorders?
   a. Speech Sound Disorders (SSD)
   b. Dyslexia

3. Prevalence of SSD
   a. 3.8% of 6-year-olds have speech delay
   b. ~10% of children ages 9-11 have a persistent speech sound disorder

4. What is dyslexia?
   a. A language based problem that may exist on a spectrum
      i. Early and subtle language deficits are present at children at risk for dyslexia
   b. Life-long disorder
c. Neurobiological in origin
d. Characterized by difficulties with accurate and/or fluent word recognition and by poor spelling and decoding difficulties
e. Deficits in the phonological component of language
f. Typical cognitive skills
g. Secondary consequences may include reading comprehension due to reduced reading experiences
h. Deficits in phonological processing and awareness
i. Phonological deficits seen across a variety of languages; but manifestation across languages is different
j. Compensated adults
   i. Poor spellers
   ii. Poor at reading quickly
   iii. Subtle phonological processing deficits
k. Classic case is not common….

5. Common misconceptions of dyslexia
   a. Most common feature is seeing letters backwards – FALSE!
   b. Individuals with dyslexia are gifted – FALSE!
   c. Dyslexia cannot be diagnosed until a child has been in school at least 3-4 years – FALSE!
   d. Dyslexia is a visual problem and therefore colored lenses or eye tracking exercises will help – FALSE!

6. Phonological Awareness (PA)
   a. Sensitivity to the sound structure of word
   b. Measured by rhyming, blending and deletion tasks
   c. Causal link between phonological awareness and early reading
      i. Good phonological awareness = good readers
      ii. Poor phonological awareness = poor readers
   d. The component of reading most likely to include SLPs
e. Skills exist on a continuum
   i. Rhyming is easiest
   ii. Phoneme manipulation is hardest

7. Why is PA important?
   a. Provides a foundation for eventual achievement of conventional literacy skills
   b. If children understand that words can be divided into phonemes and that phonemes can be blended into words, they are able to use letter-sound knowledge to read and spell
   c. May provide a means of early identification, which leads to early intervention and decreased risk of reading disorders

8. Early indicators
   a. Oral language difficulties
   b. Speech sound production difficulties/disorders
      i. Consistent use of unusual or nondevelopmental errors
      ii. Difficulty with multisyllabic words
   c. Family history
   d. Difficulty learning letter names and sounds
   e. New frontiers:
      i. Speech discrimination (Guttorp et al., 2005)
      ii. Babbling complexity (Farquharson, Hogan, Hoffman, Green, Wang, & Green, under review; Lambrecht-Smith et al., 2008)

9. NOT early indicators
   a. Reversing letters
      i. Typical until ~ 2nd grade
      ii. Common errors on long words
         1. æmɪml/æmɪml
         2. pæskərɪ/spægərɪ
**Phonological & Orthographic representations**

10. Phonological Representations
   a. Building blocks for written and spoken language
   b. Underdeveloped in kids with SSD and dyslexia
   c. May be difficult to access due to limited working memory resources
   d. Necessary for orthographic mapping – needed for sight word building

11. Orthographic representations
   a. How orthographic information is stored in long term memory
   b. Provides information regarding how to represent spoken language in written form

12. Mappings between phonological representations and orthographic representations
   a. Happens early in early development
   b. Paired associate learning – accounts for how children learn regular and irregular words
   c. Beginning readers are sensitive to mappings between ortho and phono before systematic decoding even begins

13. SSD and mapping
   a. Children often struggle to make the translation between phonology and orthography
   b. Long term difficulties even after the sound(s) are remediated
   c. Problems with testing phonological representations
       i. Speech sound production
   d. Low letter knowledge

**Cognitive Factors – evidence from empirical studies**

14. Working memory to examine deficits in phonological representations
   a. Baddeley working memory model
       i. Central executive – allocates attentional resources
       ii. Visual spatial sketchpad – processes visual information
       iii. Phonological loop – processes phonological information
b. Previous work has linked poor speech production to weak working memory

c. **What if working memory is the link between who, with an SSD, will become a good or poor reader?**

d. **What if working memory is the link between who, with an SSD, will remediate or who will persist into later grades with speech production deficits?**

15. Farquharson (2012) study
   
a. 20 children with persistent SSD and 20 typically developing
      i. Matched on age and grade
   
b. Results confirmed weaknesses in the phonological loop
      i. Particular difficulties with complex phonological forms
   
c. Next – examine children with dyslexia