1. Last two fricatives

2. /    /    //
   - Key word: she, fish, sunshine
   - place: (lingua) palatal
   - manner: fricative
   - voicing: voiceless
   - most acoustically powerful of the fricatives
   - not particularly common sound in world languages

3. Production
   - made two ways
     - grooved tongue is positioned for /s/
     - the vocal tract is position for /s/ and the lips are rounded
   - degraded by abnormal dentition and often with dentures
   - Spanish speakers may substitute /    /

4. Orthography
   - 20 different: most common: -sh-
     - s - sugar
     - c - ocean
     - ss - assure
     - ch - machine
     - -(ion) - nation
     - sch - schnapps
     - sc - conscience

5. Characteristics
   - occurs in initial middle and final: sheep, fashion, mash
   - 21st in frequency
   - 90% mastery by 7 years
   - kids with problems substitute /t/ or /d/ or omit
   - not a difficult sound for non-native speakers

6. /    /    //
   - key word: measure
   - place: (lingua) palatal
   - manner: fricative
   - voicing: voiced (cognate of /    /)
   - one of least frequent of consonants

7. Production
• retract tongue from position for /z/ or keep tongue in position and round lips
• airstream sent over grooved tongue to strike hard surface of teeth to create turbulence

8  Orthography
• no alphabet symbol is consistently associated with /z/
• most frequent - s - vision, usual, measure
• -g(e) - beige
• -z- azure

9  Characteristics
• does not occur in initial position (exception: genre)
• one of last developed: 90% - 8.6
• last in frequency of consonants
• problem sound for kids and non-native speakers
  – substituted by /t/ or /d/ or omitted
  – other subs: /z/, or affricates