

Articulation Test Results for:

## Nora Mitchell

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**Name:** Nora Mitchell  
**Age (DOB):** 4 yr. 0 mo. (12/29/16)  
**Test given:** Full Test  
**Test date:** 1/18/21  
**Score (PPC):** 81/155 (52%)

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### Summary

Nora Mitchell is a 4 yr. 0 mo. old female who was seen for evaluation of articulation and speech production on 1/18/21. The evaluation was conducted using the Full Test in Articulation Test Center Hive, by Little Bee Speech. Test results are based on Little Bee Speech Norms. The test was administered by Heidi Hanks, MS CCC-SLP at Little Bee Speech.

\*Nora Mitchell is not a real student. The scores reflected in this report are for example only.

**Nora Mitchell scored 81/155, indicating 52% of the phonemes (sounds) tested were said correctly. Of the phonemes tested, Nora Mitchell scored 44/118, indicating 37% of the consonants tested were correct, and 37/37, indicating 100% of the vowels tested were correct.**

**Nora Mitchell's intelligibility was rated as 57%, indicating a severe delay in speech intelligibility.**

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### Sound Errors Marked

During the evaluation, the following sounds were marked in error and are considered delayed based on Nora's age at testing:

#### Delayed Sound Errors:

**Initial:** k  
**Medial:** k, ng  
**Final:** k, g, ng

The following sounds were marked in error during the evaluation, but are considered developmentally appropriate based on Nora's age at testing:

#### Developmentally Appropriate Sound Errors:

**Initial:** ch, j, sh, l, s, z, bl, kw, kl, r, air, ar, ear, ire, or, er, sp, pl, gl, fl, st, br, th (voiceless), pr, dr, tr, kr, gr, fr, sm, sw, sn, sk, sl  
**Medial:** ch, j, sh, l, s, z, air, ar, ear, ire, or, er, th (voiced), th (voiceless)  
**Final:** ch, j, sh, l, s, z, air, ar, ear, ire, or, th (voiceless), rl

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### Stimulability of Sound Errors

The following speech sound errors were marked as stimulable because Nora was able to imitate the correct production of the sounds after the sounds were modeled in isolation.

### Stimulable Sounds:

g, ng, s, z, er, th (voiced), th (voiceless), k

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### Place/Manner of Sound Errors

The following speech sound errors were marked as present and are classified by place of articulation (where along the vocal tract the consonant is formed) and manner of articulation (how it is formed).

#### Errors by Place of Articulation:

**Alveolars: l, s, z**

Alveolar sounds are produced when the tongue tip comes in contact with the alveolar ridge.

**Velars: k, g, ng**

Velar sounds are produced when the back of the tongue comes in contact with the soft palate (velum).

**Palatals: sh, ch, j, r**

Palatal sounds are produced when the blade of the tongue comes in contact with the hard palate.

**Interdentals: th (voiceless), th (voiced)**

Interdental sounds are produced when the tongue tip is placed between the upper and lower teeth.

#### Errors by Manner of Articulation:

**Stops: k, g**

Stop sounds are produced when air flow is stopped at some point in the vocal tract.

**Fricatives: sh, s, z, th (voiceless), th (voiced)**

Fricative sounds are produced as air moves through a constricted opening.

**Affricates: ch, j**

Affricative sounds begin as stop sounds (air flow that is stopped), and are released as fricative sounds (air that flows through a constricted opening).

**Nasals: ng**

Nasal sounds are produced when air flows through the nasal cavity as a result of the soft palate (velum) lowering.

**Liquids: l, r**

Liquid sounds are produced so that little or no restriction occurs producing a vowel-like consonant.

The following vowel errors were marked as present and are classified by two major dimensions: tongue height (high, mid, or low) and tongue advancement (front, central or back).

#### Vowel Errors by Position & Quadrant:

**Mid-Central: er**

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### Phonological Processes Marked

The following phonological processes were marked as active ( $\geq 40\%$  occurrence) during the evaluation and are considered delayed based on Nora's age at testing:

#### Delayed Process Errors:

**Deaffrication (100% 6/6):** Occurs when an affricate (ch or j) is substituted with a stop or fricative sound like /d/ or /s/.

**Fronting (79% 11/14):** Occurs when velar sounds, like /k/, /g/ and ng, are substituted with alveolar sounds, like /t/, /d/ and /n/.

The following phonological processes were marked as present during the evaluation but are considered developmentally appropriate based on Nora's age at testing:

### Developmentally Appropriate Process Errors:

**Gliding (100% 21/21):** Occurs when /r/ becomes a /w/, and /l/ becomes a /w/ or y sound.

**Depalatalization (100% 9/9):** Occurs when a palatal sound like sh, ch, or j is replaced with an alveolar stop or fricative sound like /s/, /t/ or /d/.

**Vowelization (63% 10/16):** Occurs when the /l/ or er sounds are replaced with a vowel.

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### Distortions Marked

The following distortions were marked as present during the evaluation but are considered developmentally appropriate based on Nora's age at testing:

**Dentalized Lisp (59% 13/22):** The tongue rests on, or pushes against, the front teeth, the air-flow is directed forwards, producing a slightly muffled sound.

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### Recommendation

It is recommended that Nora receive instruction and practice to remediate the following speech sound errors and phonological processes/distortions found in her speech.

This may be accomplished with the assistance of a speech language pathologist, or other qualified professional.

#### Sound Errors to Practice:

**Initial:** k

**Medial:** k, ng

**Final:** k, g, ng

#### Phonological Processes/Distortions to Target:

Fronting, Deaffrication

It is recommended that Nora Mitchell continue to be monitored for the following speech sound errors found in her speech to ensure they continue to emerge and develop appropriately, and for the following phonological processes/distortions found in her speech to make sure suppression is achieved.

#### Sound Errors to Monitor:

**Initial:** ch, j, sh, l, s, z, bl, kw, kl, r, air, ar, ear, ire, or, er, sp, pl, gl, fl, st, br, th (voiceless), pr, dr, tr, kr, gr, fr, sm, sw, sn, sk, sl

**Medial:** ch, j, sh, l, s, z, air, ar, ear, ire, or, er, th (voiced), th (voiceless)

**Final:** ch, j, sh, l, s, z, air, ar, ear, ire, or, th (voiceless), rl

#### Phonological Processes/Distortions to Monitor:

Gliding, Vowelization, Depalatalization, Dentalized Lisp

Tips and activities for teaching these and other speech sounds may be found in [Articulation Station Hive](#), a speech therapy software program on the Apple App Store designed to treat speech sound disorders, by Little Bee Speech.

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### Words Tested (59)

Word	Marked As	Processes/Distortions
1. apple	a pp ō	Vowelization

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2. map	m a p	
3. book	b oo k	
4. rabbit	w a bb i t	Gliding
5. crab	t w a b	Fronting Gliding
6. heart	h ea - t	
7. watch	w a s	Depalatalization Deaffrication
8. toys	t oy s	
9. teacher	t ea t er	Stopping /ʃ/, /tʃ/, /dʒ/ Deaffrication Depalatalization Assimilation
10. potato	p o t a t o	
11. eight	ei ght	
12. deer	d ee ō	Vowelization
13. ladder	w a dd er	Gliding
14. slide	s w i de	Dentalized Lisp Gliding
15. nose	n o se	Dentalized Lisp
16. dinosaur	d i n o s au -	Dentalized Lisp
17. train	t w ai n	Gliding
18. cow	t ow	Fronting
19. vacuum	v a t uu m	Fronting
20. clock	t w o ck	Fronting Gliding
21. girl	g ō ō	Vowelization
22. yogurt	y o g ur t	
23. frog	f w o d	Gliding Fronting
24. blanket	b w a - k e t	Gliding
25. swing	k w i n	Stopping /h/, /f/, /s/ Fronting
	<b>Note:</b> Backing	
26. thumb	f u mb	Labialization
27. feather	f ea v er	Labialization
28. elephant	e w e ph a n t	Gliding
29. giraffe	d w a ffe	Stopping /ʃ/, /tʃ/, /dʒ/ Deaffrication Depalatalization Gliding
30. shovel	t o v el	Stopping /ʃ/, /tʃ/, /dʒ/ Depalatalization
31. glove	d w o ve	Fronting Gliding
32. cherry	t e w y	Stopping /ʃ/, /tʃ/, /dʒ/ Deaffrication Depalatalization Gliding

33. pajamas	p a d a m a s	Stopping /ʃ/, /tʃ/, /dʒ/ Deaffrication Depalatalization
34. orange	o w a n d	Gliding Stopping /ʃ/, /tʃ/, /dʒ/ Deaffrication Depalatalization
35. tissue	t i t u e	Stopping /ʃ/, /tʃ/, /dʒ/ Depalatalization Assimilation
36. toothbrush	t o o f b r u s	Labialization Depalatalization Dentalized Lisp
37. grass	d w a s s	Fronting Gliding
38. zebra	z e b r a	Dentalized Lisp
39. present	p w e s e n t	Gliding Dentalized Lisp
40. arrow	a w o w	Gliding
41. bear	b e a ō	Vowelization
42. arm	a - m	
43. star	s t a -	Dentalized Lisp
44. ears	e a ō s	Vowelization
45. cereal	c e w e a l	Dentalized Lisp Gliding
46. iron	i ō on	Vowelization
47. fireman	f i ō m a n	Vowelization
48. tire	t i ō	Vowelization
49. horse	h o - s e	Dentalized Lisp
50. earth	ō f	Vowelization Labialization
51. queen	t u e e n	Fronting
52. flowers	f w o w e r s	Gliding
53. plane	p w a n e	Gliding
54. sky	s t y	Dentalized Lisp Fronting
55. smell	s m e l l	Dentalized Lisp
56. snake	s n a t	Dentalized Lisp Fronting
57. spoon	s p o o n	Dentalized Lisp
58. bricks	b w i c k s	Gliding
59. drums	d w u m s	Gliding

## Errors Marked

### Sound Errors

Errors by Sound Position: **Initial** = 70% (35/50) **Medial** = 42% (16/38) **Final** = 51% (16/31)

Age of Acquisition	Initial	Medial	Final	Stimulable
Age 3	k	k	k	yes
			g	yes
		ng	ng	yes
Age 4	ch	ch	ch	no
	j	j	j	no
	sh	sh	sh	no
	l	l	l	
	s	s	s	yes
Age 4½	z	z	z	yes
	bl			
	kw			
Age 5	kl			
	r			no
	air	air	air	no
	ar	ar	ar	no
	ear	ear	ear	no
	ire	ire	ire	no
	or	or	or	no
	er	er		yes
		th (voiced)		yes
Age 5½	sp			
	pl			
	gl			
	fl			
Age 6	st			
	br			
	th (voiceless)	th (voiceless)	th (voiceless)	yes
	pr			
	dr			
	tr			
	kr			
	gr			
	fr			
	sm			
Age 6½	sw			
	sn			
Age 7	sk			
	sl		rl	

### Errors by Place of Articulation

Place	Sounds Tested	Overall	% Incorrect		
			Initial	Medial	Final
Alveolars	t, d, n, l, s, z	64% 23/36	70% 16/23	50% 3/6	57% 4/7
Velars	k, g, ng	86% 12/14	88% 7/8	67% 2/3	100% 3/3
Palatals	sh, ch, j, y, r	94% 17/18	92% 11/12	100% 3/3	100% 3/3
Interdentals	th (voiceless), th (voiced)	100% 4/4	100% 1/1	100% 2/2	100% 1/1

### Errors by Manner of Articulation

Manner	Sounds Tested	Overall	% Incorrect		
			Initial	Medial	Final
Stops	p, b, t, d, k, g	31% 10/32	35% 7/20	17% 1/6	33% 2/6
Fricatives	f, v, sh, s, z, th (voiceless), th (voiced)	71% 20/28	73% 11/15	71% 5/7	67% 4/6
Affricates	ch, j	100% 6/6	100% 2/2	100% 2/2	100% 2/2
Nasals	m, n, ng	20% 2/10	0% 0/4	33% 1/3	33% 1/3
Liquids	l, r	100% 18/18	100% 15/15	100% 1/1	100% 2/2

### Vowel Errors

Position / Quadrant	Sounds Tested	Overall	% Incorrect		
			Initial	Medial	Final
Mid-Central	er, ŭ	86% 18/21	100% 6/6	86% 6/7	75% 6/8

### Substitutions

Sounds in Error	Initial	Medial	Final
k	substituted with → t	t	t
g	substituted with →		d
ng	substituted with →	∅	n
ch	substituted with → t	t	s
j	substituted with → d	d	d
sh	substituted with → t	t	s
l	substituted with → w	w	ō
bl	substituted with →	bw	
kw	substituted with →	tw	
kl	substituted with →	tw	
r	substituted with →	w	
air	substituted with →	ěw	ěō
ar	substituted with →	ǒ∅	ǒ∅
ear	substituted with →	ēō	ēō
ire	substituted with →	īō	īō
or	substituted with →	ōw	ō∅
er	substituted with →	ǒo	w
th	substituted with →		v
pl	substituted with →	pw	

gl	substituted with →	dw		
fl	substituted with →	fw		
br	substituted with →	bw		
th	substituted with →	f	f	f
pr	substituted with →	pw		
dr	substituted with →	dw		
tr	substituted with →	tw		
kr	substituted with →	tw		
gr	substituted with →	dw		
fr	substituted with →	fw		
sw	substituted with →	kw		
sk	substituted with →	st		
sl	substituted with →	sw		
rl	substituted with →			ööö

## Phonological Processes

Process Type	Processes Marked	Should be Eliminated by	Occurrence
Substitution	Fronting	Age 3	79% (11/14)
	*Stopping	Age 3 - 4	23% (8/35)
	Gliding	Age 5	100% (21/21)
	Deaffrication	Age 4	100% (6/6)
	*Labialization	Age 6	13% (4/30)
	Vowelization	Age 5	63% (10/16)
	Depalatalization	Age 5	100% (9/9)
Assimilation	*Assimilation	Age 3	3% (2/67)

## Distortions

Distortions Marked	Should be eliminated by	Occurrence
Dentalized Lisp	Age 4 ½	59% (13/22)

\*Phonological processes that have an occurrence of less than 40% are not considered an active process. They may be considered an emerging skill.

**Note:** Speech sound norms, and the age phonological processes/distortions are eliminated are a one year range. For example, if the age of acquisition is 5 for a speech sound, the child has until 5 years 11 months to master the sound. Therefore, sound errors and active phonological processes/distortions are not considered delayed until one year following the age of acquisition or age of elimination.

The ages at which speech sounds develop, and phonological processes/distortions are eliminated are highly variable among children. As a result speech sound norms and the age of elimination for phonological processes/distortions should be used as a reference only when considering the need for intervention.

**Norms Used:** Little Bee Speech Norms; Contributed by: Little Bee Speech; Based on the following research: Arlt & Goodban (1976), Bleile (1995), Bowen (2011), Fudala & Reynolds (1986), Gordon-Brannan & Hodson (2000), Hegde (2001), Hodson & Paden (1991), Hodson (2007, 2010), Irwin & Wong (1983), Linguistics (2009), McLeod & Crowe (2018), McReynolds & Elbert (1981), Pena-Brooks & Hegde (2000, 2007), Poole (1931), Prather, Hendrick, & Kern (1975), Sander (1972), Smit, Hand, Freilinger, Bernthal, & Bird (1990), Templin (1957), and Wellman, Case, Mengert, & Bradbury (1931).

## Speech Sample

Based on the speech sample that was taken, Nora was given an intelligibility rating of:

57%

## Speech Sample Transcription

Woot! Vez a tut.

My dad has a tut too.

His tut is deen.

A stunt!

We had a stunt in a bat yod.

It was stiti!

We went tampin in a tent.

Dat di has bid eyes.

Du be is hidin in du but.

I fint moffs woot wite buttufwies.

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10/26/23

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Heidi Hanks, MS CCC-SLP

Date

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