

## Puberty Phases and Stages with lowest singing notes definitively mapped against TV Reference

<i>Fuchs Mutation Phases</i>						
<b>Premutation</b> <ul style="list-style-type: none"> <li>6-month period during which voices perceptibly deepen.</li> <li>Sopranos may sing alto</li> <li>Plan for leaving soprano/alto section.</li> <li>Measurable increases in jitter and shimmer (roughness).</li> </ul>	<b>Mutation</b> <ul style="list-style-type: none"> <li>Period of high instability</li> <li>Periodic changes of range</li> <li>Individual singing lessons only</li> </ul>			<b>Post Mutation</b> <ul style="list-style-type: none"> <li>Adult ranges begin to stabilize</li> <li>Choral singing resumes</li> </ul>		
Emerging Voices Parts (cambiata)						
<ul style="list-style-type: none"> <li>Soprano (occasionally alto)                             <ul style="list-style-type: none"> <li>Cambiata I (range bottom F#3)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>Cambiata II (range bottom Eb3)</li> </ul>			<ul style="list-style-type: none"> <li>Emerging baritone (range bottom A2)</li> <li>Some voices may begin to develop as tenor or bass</li> </ul>		
Tanner G Stages						
G1	G2	G3	G4	G5		
Lowest Singing Note (Cooksey)						
A3	Ab3	F3	D3	B2	G2	
Testicular Volume (definitive/reference)						
<3ml	3-4ml	4ml	5-6 ml	10ml	12-15ml	
25ml+						
General Medical Practice (RCPCH)						
<b>Pre-puberty</b> (Tanner stage 1) <p>If <b>both</b> of the following:</p> <ul style="list-style-type: none"> <li>High voice</li> <li>No signs of pubertal development</li> </ul>	<b>In Puberty</b> (Tanner stages 2-3) <p>If <b>any</b> of the following:</p> <ul style="list-style-type: none"> <li>Slight deepening of the voice</li> <li>Early pubic or armpit hair growth</li> <li>Enlargement of testes or penis</li> </ul>			<b>Completing Puberty</b> <p>If <b>any</b> of the following:</p> <ul style="list-style-type: none"> <li>Voice fully broken</li> <li>Moustache and early facial hair growth</li> <li>Adult size of penis with pubic and axillary hair</li> </ul>		

**Note:** No time intervals are implied in this table. Time spent at each phase is highly idiosyncratic and the in-puberty/mutation phase may be quite short for some boys.