

Primary 12-Lead ECG Education Objectives

Section 1 A&P Review

1. Given a diagram of the chest, student will be able to (SWBAT) locate the heart with regard to position, size and orientation within the chest cavity.
2. Given a diagram of the heart, SWBAT identify the 2 major coronary arteries and their 3 additional branches.
3. Given a diagram of the heart and its coronary arteries, SWBAT identify the region of the heart perfused by each
4. Given a diagram of the cardiac conduction system, SWBAT identify and list in order the following components:
 - SA Node, AV Node, Bundle of His, L and R Bundle Branches, Purkinje Fibers
5. SWBAT define the following terms with regard to cardiac electrophysiology:
 - Excitation, Depolarization, Resting potential, Action potential, Repolarization

Section 2 ECG Basics

6. SWBAT identify the positive and negative locations of the following leads:
 - I, II, III, AVR, AVL, AVF, V1-V6
7. With regard to a standard ECG tracing, SWBAT identify the isoelectric line and relative positive and negative deflections.
8. Given a standard ECG tracing SWBAT identify the following components:
 - P Wave, QRS Complex, T Wave, J Point
11. Given a standard ECG tracing SWBAT relate the following components to their sequence in the cardiac conduction cycle:
 - P Wave, QRS Complex, T Wave, J Point
12. Given a standard ECG tracing SWBAT list the correct time intervals of the following ECG components:
 - PR interval, QRS interval

Section 3 ECG Interpretation Review

13. SWBAT list in order the appropriate steps in interpreting an ECG
14. SWBAT correctly utilize 2 methods of determining rate with regard to ECG interpretation
15. Given an ECG tracing, SWBAT identify and list the defining components of the following rhythms: Normal Sinus Rhythm, Sinus Bradycardia, Sinus Tachycardia, Supraventricular Tachycardia, Atrial Flutter, Atrial Fibrillation, 1st Degree AV Block, Second Degree Type 1 AV Block, Second Degree Type 2 AV Block, Third Degree AV Block, Ventricular Escape, Ventricular Tachycardia, Ventricular Fibrillation, Asystole

Section 4 Intro to 12-Lead ECG

16. SWBAT list two of the three steps necessary in preparing the chest for ECG lead placement
17. Given a modern 4-lead set of ECG leads, SWBAT correctly identify the placement location of the 4 leads on the chest.
18. Given a modern 6-lead (V-leads) set of ECG leads, SWBAT correctly identify the placement location of the 6 V-leads on the chest.

Section 5 12-Lead Interpretation

19. SWBAT recall that ECG interpretation notes nothing with regard to mechanical aspects
20. SWBAT list the 3 components of the bundle branch system
21. SWBAT define the purpose of the bundle branch system
22. SWBAT define syncytium
23. SWBAT define and list at least 2 negative physiologic outcomes of a Bundle Branch Block
24. SWBAT list the sequence of a bundle branch block
25. Using appropriate resources and given an ECG tracing, SWBAT identify a right and left Bundle Branch Block
26. SWBAT define the limitation, with regard to ST elevation identification in the presence of a BBB.
27. SWBAT recall that the presence of a Left Bundle Branch Block can indicate AMI

Section 6 Diagnostic 12-Lead ECG

28. SWBAT define and list 2 ECG findings associated with ischemia
29. SWBAT define and list at least 1 ECG finding associated with cardiac injury
30. SWBAT define and list at least 1 ECG finding associated with infarction
31. SWBAT explain the limitation of Q waves findings with regard to diagnosis of AMI
32. SWBAT list the specific ECG leads associated with the inferior wall of the heart
33. Given an ECG tracing, SWBAT identify an inferior wall MI
34. SWBAT list the specific ECG leads associated with the anterior wall of the heart
35. Given an ECG tracing, SWBAT identify an anterior wall MI

36. SWBAT list the specific ECG leads associated with the lateral wall of the heart
37. Given an ECG tracing, SWBAT identify a lateral wall MI
38. SWBAT list the specific ECG leads associated with the septal wall of the heart
39. SWBAT list the specific ECG leads associated with the right ventricle of the heart
40. SWBAT list the specific ECG leads associated with the posterior location of the heart
41. Given a 12-lead set of ECG leads, SWBAT correctly identify the placement location of the V4R lead
42. Given a 12-lead set of ECG leads, SWBAT correctly identify the placement location of the V8 and V9 leads
43. SWBAT define reciprocal ECG change
44. SWBAT list the reciprocal ECG findings of a posterior wall AMI
45. Given an ECG tracing, SWBAT list in order the steps in locating and identifying AMI.
46. SWBAT list at least 2 imitators of infarction

Section 7 Diagnosing Tachycardias with 12-Lead ECG

47. Using appropriate resources and given an ECG tracing, SWBAT identify Ventricular Tachycardia

Section 8 EMS and ACS

48. SWBAT define Acute Coronary Syndrome
49. SWBAT at least 2 complications of Acute Myocardial Infarction
50. SWBAT define and list the 2 treatment goals for Acute Coronary Syndrome
51. SWBAT define and list at least 1 limitation of ECG with regard to identification of Acute Coronary Syndrome
52. SWBAT define ST Elevation Myocardial Infarction
53. SWBAT define and list 2 types of diagnostic ECG findings with regard to ACS Acute Coronary Syndrome
54. SWBAT state the importance of serial 12-lead ECG
55. Given appropriate resources, SWBAT list the components of a reperfusion checklist

Section 9 Practical

56. Given an ECG tracing, SWBAT identify a normal 12-lead ECG and an inferior, anterior, septal and lateral wall MI
57. Given a 4-lead set of ECG leads, SWBAT correctly place the 4 leads on a manikin or program patient chest.
58. Given a modern 6-lead (V-leads) set of ECG leads, SWBAT correctly place the 6 V-leads on a manikin or program patient chest.