Samples from Integral's teaching resources:

4. Mechanics

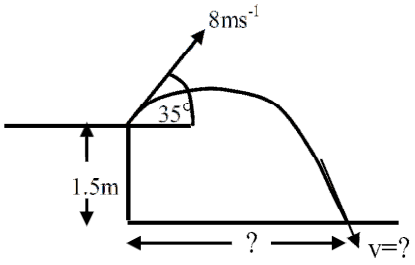
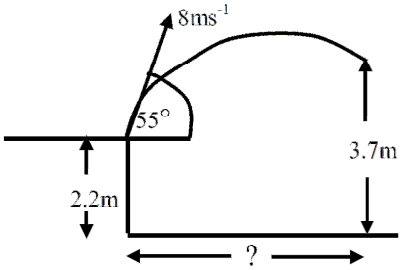
As well as extensive resources aimed at students such as exercises, online tests, and learning walkthroughs, Integral contains numerous teaching ideas and classroom activities. Examples are featured in this series:

Projectiles

The next page contains the solutions to two projectile questions. Students should cut them up, stick the diagrams on separate sheets of paper (or different sides of the same sheet). Then the other boxes should be sorted between the two solutions and then stuck down in an appropriate order. Words and explanations should be added down the side of each solution. Finally students should write a possible real-life problem that requires this solution.

For more information about Integral and to access further samples visit integralmaths.org .

Projectiles solution sorting

	
$v = u + at$	$\sqrt{7.10^2 + 6.55^2} = 9.66\,\text{ms}^{-1}$
$a = 0$	$a = -9.8\,\text{ms}^{-1}$
$s = -1.5\,\text{m}$	$4.9t^2 - 6.553t + 1.5 = 0$
$t = 1.044\,\text{s}, t = 0.293\,\text{s}$	$s = 1.5\,\text{m}$
$s = ut + \frac{1}{2}at^2$	$-1.5 = 4.589t - 4.9t^2$
$s = ut + \frac{1}{2}at^2$	$u = 8\cos 35 = 6.553\,\text{ms}^{-1}$
$s = 6.553 \times 1.193 = 7.582\,\text{m}$	$s = 4.589 \times 1.044 = 4.79\,\text{m}$
$1.5 = 6.553t - 4.9t^2$	$a = -9.8\,\text{ms}^{-2}$
$u = 8\sin 55 = 6.553\,\text{ms}^{-1}$	$t = 1.193\,\text{s}, t = -0.257\,\text{s}$
$v = 4.589 - 9.8 \times 1.193$	$4.9t^2 - 4.589t - 1.5 = 0$
$u = 8\sin 35 = 4.589\,\text{ms}^{-1}$	$u = 8\cos 55 = 4.589\,\text{ms}^{-1}$
$s = ut + \frac{1}{2}at^2$	$s = ut + \frac{1}{2}at^2$
$v = -7.10\,\text{ms}^{-1}$	$a = 0ms^{-2}$