SPH3U N	Name	:	Date: _				
Speed of Waves – Investigation							
<ul><li>Key Questions:</li><li>1. Do waves move at a constant speed through a medium?</li><li>2. What factors affect the speed of a wave?</li></ul>							
<u>Transverse Pulses</u>							
<b>Teacher Demonstration:</b> Measuring the speed of a wave in a <b>heavy</b> coiled wave.							
Tension:LO\	N	Mediur	n:HEAVY SLINKY_				
# of lengths of sprii	ng	Distance (m)	Time (s)	Speed (m/s)			
2		, ,	,,				
2							
			Average Speed				
Student Investigation:							
Mark out 5 metres on the floor with masking tape. Stretch the spring to this length. Measure the approximate tension. <i>Don't change this over the three trials</i> .  SMALL AMPLITUDE WAVE Tension:LOW Medium:LIGHT SLINKY							
# of lengths of sprii	ng	Distance (m)	Time (s)	Speed (m/s)			
2							
2			Average Speed				
			c.age opeca				
LARGE AMPLITU	JDE W	/AVE					
# of lengths of sprii		Distance (m)	Time (s)	Speed (m/s)			
2	_						
2							
		1	Average Speed				
			ı				
What affect does the amplitude have on the speed of the wave?							

Is the speed of the wave constant (or at least close to constant)

in the spring?

SPH3U Name:		Date:						
Increase the tension in the spring. Not too much!								
	Tensior	n:HIGH_ Medium: _	LIGHT SLINKY					
# of lengths of spring	Distance (m)	Time (s)	Speed (m/s)					
2								
2								
		Average Speed						
What affect does increasing the tension in the spring have on the								
speed of the wave?								
Longitudinal Pulses								
_								
Set the tension to the higher tension from the first investigation. Send a longitudinal								
and the state of the state of		pulse through the spring. Tension: _HIGH Medium: _LIGHT SLINKY						
pulse through the spr	ing. Tension: _HIG	H Medium:	_LIGHT SLINKY					
pulse through the spr # of lengths of spring	ing. Tension: _HIG  Distance (m)	H Medium: Time (s)	_LIGHT SLINKY Speed (m/s)					
	_							
# of lengths of spring	_							
# of lengths of spring	_							
# of lengths of spring	_	Time (s)						
# of lengths of spring 2 2	_	Time (s)  Average Speed						
# of lengths of spring 2 2	Distance (m)	Time (s)  Average Speed						
# of lengths of spring 2 2 Is the speed of the wa	Distance (m)	Time (s)  Average Speed						
# of lengths of spring 2 2 Is the speed of the wa	Distance (m)	Time (s)  Average Speed						
# of lengths of spring 2 2 Is the speed of the wallongitudinal wave?	Distance (m)	Time (s)  Average Speed						
# of lengths of spring 2 2 Is the speed of the wallongitudinal wave?  CONSLUSIONS:	Distance (m)	Average Speed o constant) in a	Speed (m/s)					
# of lengths of spring 2 2 Is the speed of the wallongitudinal wave?  CONSLUSIONS:	Distance (m)  ave constant (or close to	Average Speed o constant) in a	Speed (m/s)					
# of lengths of spring 2 2 Is the speed of the wallongitudinal wave?  CONSLUSIONS:  1. What can you con	Distance (m)  ave constant (or close to be about the speed)	Average Speed o constant) in a of a wave through a m	Speed (m/s)					
# of lengths of spring 2 2 Is the speed of the wallongitudinal wave?  CONSLUSIONS:  1. What can you con	Distance (m)  ave constant (or close to	Average Speed o constant) in a of a wave through a m	Speed (m/s)					
# of lengths of spring 2 2 Is the speed of the wallongitudinal wave?  CONSLUSIONS:  1. What can you con	Distance (m)  ave constant (or close to be about the speed)	Average Speed o constant) in a of a wave through a m	Speed (m/s)					
# of lengths of spring 2 2 Is the speed of the wallongitudinal wave?  CONSLUSIONS:  1. What can you con 2. What factor does	Distance (m)  ave constant (or close to be about the speed)	Time (s)  Average Speed o constant) in a  of a wave through a m	Speed (m/s)					

4. What factor would you change in the heavy coiled spring in order to get its speed to

match the speed of the *lighter* spring if both were at the same tension?