**IB Physics**

Fluid Mechanics and Gas Laws Syllabus

Chapters 10 and 13

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| A/B | Class | Due on this class: | If you miss this class: |
| 1  **Sept**  **6/7** | -Research Project proposals  -Density  -Pressure/Conversions/Gauge Pressure |  | **Read:** 10.1-4  **Watch:** Videos 10: A, B, D (?) |
| 2  **Sept**  **8/11** | -Hydrostatic Pressure  -Pascal's Principle  -Demos | **Check:** P10.1: 1,2,4,5,17,18,19, 20,21,27,29,31 | **Read:** 10.5-6  **Watch:** Videos 10: C, F, G (?) |
| 3  **Sept 12/13** | -More Pascal  -Buoyant Forces  -Demos | **Check:** P10.1: 32,33,37,38,40, 41,42 | **Read:** 10.6-7  **Watch:** Videos 10: G, H (?) |
| 4  **Sept 14/15** | -Continuity  -Bernoulli's equation | **Check:** P10.1: 45,46,48,49,50, 51,52,53  **Turn in:** P10.1:  (1,2,4,5,17,18,19, 20,21,27,29,31,32,33,37,38,40, 41,42,45,46,48,49, 50,51,52,53) | **Read:** 10.8-10  **Watch:** Videos 10: I,J (?) |
| 5 Sept 18/19 | -More Bernoulli  -Viscosity  -Stokes' law  -Research ideas | **Check:** P10.2:1,2,3,6,7,8,16,17 | **Read:** 10.9-11  **Watch:** Videos 10: I,J,K,L,M (?) |
| 6  **Sept 20/21** | -Reynolds numbers and turbulence  -Surface tension  -More Demos  -Work on Temperature, pressure, pressure conversions, and basic Ideal Gas Law problems.  -Work on W13: 1-9 | **Check:** P10.2: 11,12,13,18,19, 21,22,23,26,27,28  **Turn in:** P10.2:  (1,2,3,6,7,8,16,17,11,12,13,18,19, 21,22,23,26,27,28)  **Video Flip: 13: A, B, D,F (≈20 minutes)** | **Read:** 10.13, 13.1-3,5,6-8  **Watch:** Videos 13: A, B, D,F |
| 7  **Sept 22/26** | -Work on FAs  -Finish Ideal Gas, work on Combined Gas Law problems  -**Absolute zero practical lab.**  -Work on W13: 10-19 | **Video Flip: 13: G (≈7 minutes)**  **Check:** P13.1 1-9 | **Read:** 13.1-3,5,6-8  **Watch:** Videos 13: G |
| 8  **Sept**  **27/28** | -Research Proposals discussion  -Work on FA 10.1, 10.2, 13.1, 13.2 | **Video Flip: 13: C (≈10 minutes)**  **Check:** W13.1 10-19  **Turn in:** Absolute Zero Lab | **Watch:** Videos 13: C |
| 9  **Sept 29/**  **Oct 2** | **Summative Assessments on:**  **10.1 - Fluid Statics**  **10.2 - Fluid Dynamics**  **13.1 - Ideal Gas Law** | **Turn in:** FA 10.1, 10.2, 13.1, 13.2  **Turn in:** P13.1: 1-19  Turn in **all** formative work you want credit for from 10.1, 10.2, and 13.1 | **Make up your tests** |
| **Oct**  **3/4** | **Thermodynamics!!** | **Turn in:** Research Proposals |  |

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| Four Formative/ Three Summative Assessments: (10 pts)   * 10.1 - Fluid Statics * 10.2 - Fluid Dynamics * 13.1 - Ideal Gas Law * 13.2 - Kinetics (no summative)   Three Formative Homework set:   * P10.1: 1,2,4,5,17,18,19, 20,21,27,29,31,32,33,37,38,40, 41,42,45,46,48,49, 50,51,52,53 /54 pts * P10.2:1,2,3,6,7,8,16,17,11,12,13,18,19, 21,22,23,26,27,28 /38 pts * P13.1:1-19 /38 pts   One Lab:   * Absolute Zero (20 pts) | Handouts:   * Worksheet-13.1-PressureTemperatureIdealGasLaw * Worksheet-10.2-FluidDynamics * Worksheet-10.1-FluidStatics * FA10.1 * FA10.2 * FA13.1 * FA13.2 |