1. **a** Sketch an energy level diagram that you think shows:  
    **i** a good fuel **ii** a very poor fuel  
    **b** What else do you need to think about, to decide whether a substance would make a good fuel?  
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| Fuel | Equation for burning in oxygen | Heat given out per gram of fuel / kJ |
| natural gas (methane) | CH4 (*g*) + 2O2 (*g*) 🡒 CO2 (*g*) + 2H2O (*l*) | -55 |
| ethanol | C2H5OH (*l* ) + 3O2 (*g*) 🡒 2CO2 (*g*) + 3H2O (*l*) | -86 |
| hydrogen | 2H2 (*g)* + O2 (*g*) 🡒 H2O (*g*) | -143 |

1. Look at the table above. From all the information given, which of the three fuels do you think is best? Explain.  
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2. The fuel butane (C4H10) burns to give the same products as methane. Write a balanced equation for its combustion.  
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