PURPOSE: Characterisation of the classification of brain tumours authorized by the WHO. METHOD OF APPRAISAL: This classification was revised and published in its second version. In the revision, some tumours were regrouped histogenetically and some tumour variants were added. Radiologically relevant changes of the classification include the differentiation of four new tumour entities that are easily distinguished by MR imaging. These four tumours belong to the group of childhood tumours or tumours occurring in early adulthood and are characterized by a good prognosis after extirpation. RESULTS OF APPRAISAL: Central neurocytomas are small-cyst ventricular tumours associated with the foramen of Monroi and show moderate contrast enhancement. Infantile desmoplastic gangliogliomas/astrocytomas commonly consist of a solid tumour portion related to the leptomeninges with pronounced contrast enhancement and a typically very large cyst. Pleomorphic xanthoastrocytomas are circumscribed cortical tumours and usually show very moderate gyriform enhancement with only slight signs of a mass effect. Dysembryoblastic neuroepithelial tumours, which originate in the cortical/ subcortical region, likewise show no mass effect; they are characterised by thickening of the cortex from surrounding dysplastic tissue and erosion of the calotte.